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The New international year book

THE NEW INTERNATIONAL YEAR BOOK

A COMPENDIUM OF THE WORLD'S
PROGRESS

FOR THE YEAR

1919

EDITOR

FRANK MOORE COLBY, M.A.

NEW YORK
DODD, MEAD AND COMPANY

1920

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Railway*

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PREFACE

In the present volume—the thirteenth of the new series which began in 1907, and the eighteenth since the work was originally undertaken in 1898—the following articles may be mentioned as among those most likely to be useful for reference in discussions arising during the coming year: WAR OF THE NATIONS; WAR FINANCE; FRANCE; GREAT BRITAIN; GERMANY; RUSSIA; SOCIALISM; INDUSTRIAL RECONSTRUCTION; the groups of articles dealing with labor subjects, agriculture, industries, and applied science, including CHEMISTRY, INDUSTRIAL; AERONAUTICS; SHIPPING; SHIPBUILDING; topics in ENGINEERING; MILITARY PROGRESS; NAVAL PROGRESS, etc. The discussion of controverted questions arising from the Treaty will be found under WAR OF THE NATIONS and in the articles on the countries concerned, along with summaries of the treaties, and other important documents and the text of the Covenant. News throughout the year being wholly at the mercy of propagandism, the facts in regard to controverted international topics were not accessible, and it was necessary to give the opposing versions at some length. The articles on Literature seem to indicate that the war did not diminish the fertility of authors, and in the case of GERMAN LITERATURE, that it did not seriously alter their point of view. The political sections of the article on the UNITED STATES will be found convenient for reference in the Presidential campaign. The antecedents of the present Irish situation are given under the title of *The Irish Question* in the article on GREAT BRITAIN.

FRANK MOORE COLBY.

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THE NEW INTERNATIONAL YEAR BOOK

ABBOTT, CHARLES CONRAD. Naturalist, died at Bristol, Pennsylvania, July 27; well known as the author of many works on natural history. He was born at Trenton, New Jersey, June 4, 1843; graduated at Princeton and made a reputation as a collector of valuable archaeological specimens. He was assistant in the Peabody Museum from 1876 to 1889 and a member of various learned bodies. The list of his writings includes the following: *The Stone Age in New Jersey* (1876); *Primitive Industry* (1881); *A Naturalist's Rambles About Home* (1884); *Upland and Meadow* (1886); *Wasteland Wanderings* (1887); *Days Out of Doors* (1889); *Outings at Odd Times* (1890); *Recent Rambles* (1892); *Travels in a Treetop* (1894); *The Birds About Us* (1894); *Notes of the Night* (1895); *A Colonial Wooing* (novel, 1895); *Birdland Echoes* (1896); *When the Century Was New* (novel, 1897); *The Hermit of Nottingham* (novel, 1897); *The Freedom of the Fields* (1898); *Clear Skies and Cloudy* (1899); *In Nature's Realm* (1900); *Archaeological Explorations in the Valley of the Delaware* (1894); *Rambles of an Idler* (1906); *Archaeologia Nova Caesarea* (1907, 1908, 1909); *Ten Years' Diggings in Lenâpè Land* (1912).

ABYSSINIA. A North African monarchy lying to the southwest of the Red Sea, and bounded on the west by Sudan, Massaua, the French Somali Coast, and the British Somali protectorate, and on the northwest and south by British East Africa, and the Uganda Protectorate. It has an estimated area of 350,000 square miles and an estimated population of over eight millions. It comprises nine provinces, namely: Harar and dependencies; Wollo, Kassa and Magi; Gore; Tigré; Damot and Gojam; Equatorial provinces: Gondar, and Gima. The independence of Abyssinia was recognized by Italy in the convention of Addis Abeba on October 26, 1896; and the frontiers of the country were determined by treaties with Great Britain in 1902 and 1908, and with Italy in 1908, although in 1919 the Abyssinian government had not yet definitely accepted the delimitation. An important agreement was reached on December 13, 1916, by Great Britain, France, and Italy as to their respective interests in the country. The three Powers agreed to the principle of the open door and to the guaranty by joint action, if necessary, of the safety of their interests. They undertook to preserve the integrity of Abyssinia and to abstain from interference in its internal affairs; and they agreed that any industrial concessions should be made to one of the Powers in

such a manner as not to conflict with the interests of the others. An agreement was also reached in regard to railway construction and in regard to equal treatment of the nationals of the three Powers in trade and transit. They provided for the protection of the zone of the railway built by the French from Jibuti to Diré, and agreed that the French should define the line to Addis Abeba, but stipulated that there should be equal treatment on the line for the three Powers. The British government was to receive a concession for the construction of railways west of Addis Abeba, and Italy for a line from Bena-dir to Eritrea.

The Abyssinians have been Christians since their conversion in the fourth century, and are members of the Alexandrian church under a head bishop or Abuna who is always a Copt, and appointed by the patriarch of Alexandria. Illiteracy prevails, education being confined in general to the clergy. In October, 1907, an edict was passed declaring education compulsory for all male children over the age of twelve, but this has remained a dead letter. Agriculture and grazing are the main pursuits; but though the soil is capable of a fairly varied production, agriculture is backward and few products are extensively cultivated. Cotton, coffee, sugar-cane, dates, and vines are raised to some extent, and minerals abound, including iron, coal, sulphur, copper and silver, but are not extensively worked. In some districts iron is obtained and manufactured into hatchets, knives, and other implements, and gold mining is carried on in many parts of the country. The chief exports are skins, hides, coffee, ivory, wax, civet, gums, spices, gold, rubber, and native butter. The imports comprise manufactures including cotton goods, arms and munitions, liquors, railway material, sugar and petroleum, the imports coming mainly from England, France, India, Italy and the United States. No complete figures for exports and imports are available. The export of coffee into the Sudan was reported to be increasing. The exports through Jibuti in 1917 were reported as follows: Hides, 5,704,423 kilos; coffee, 5,092,647. The exports from Abyssinia to the Sudan were reported for 1917 as follows: coffee £E105,895; wax £E18,265. The total from Sudan in 1917 was reported at £E65,226. The Board of Trade returned the imports from Abyssinia into Great Britain for 1916 at £3330 and the exports to Abyssinia at £3774. The exports from Great Britain to Abyssinia in 1917 were reported at £3833, and in 1918 £13,102.

Coffee is found in parts of the country where

the altitude is from 4500 to 6500 and the production of Harari coffee is reported to be on the increase. This is a long-berry Mocha coffee and besides this there grows wild in southern and western parts of the country an abundant supply of the plant which yields the so-called Abyssinian coffee berry. Primitive conditions of barter still prevail, many articles being used as a medium of exchange, for example, bars of salt and cart-ridges. The unit of currency has been the Maria Theresa dollar to which has lately been added a new coin known as the Menelek dollar of about the same value. Manufactures are but little developed and confined chiefly to coarse cloth, pottery, leather, and iron implements. Means of communication are primitive and transport is carried on by pack-horses, mules, donkeys, and camels, the roads being mere trails. The French railway line from Jibuti to Diré Dawa is 187 miles in length. A new company was formed to complete the line to Addis Abeba in 1909 which had nearly reached completion in 1915. Telegraph lines connect the capital with Harar and with Jibuti in French Somaliland and with Massaua in Eritrea, having a total length of about 1056 miles.

The country is under practically a feudal régime, the soil theoretically belonging to the Negus (emperor). The notion of land as private property scarcely exists. The strength of the army is placed at 250,000 men. After the death of Menelek in December, 1913, his grandson, Lidj Yasu, succeeded, but was deposed September 27, 1916, and succeeded by his aunt, Ouizero Zeoditu (or Waizero Zauditu), born 1876, who was crowned at Addis Abeba, February 11, 1917. The Ras Tafari was proclaimed regent and heir to the throne. The new government was recognized by Great Britain. During 1917, -18, and -19, conditions of civil war were reported.

ACADEMY, FRENCH (ACADÉMIE FRANÇAISE). The oldest, and officially considered the highest of the five academies constituting the Institute of France; founded in 1635 by Cardinal Richelieu. It was reorganized in 1816, and has been recognized as an arbiter in literary questions. Its forty members, known as the Forty Immortals, are for the most part distinguished men of letters, but among them are found men eminent in public service, such as M. Clemenceau and Marshals Joffre and Foch. In 1919 the Academy was still at work upon its monumental dictionary with which it has been associated from the beginning. In fact the Academy's work upon it goes back to the year of foundation, for it made a decision on March 20, 1634, to undertake a dictionary which should assure the purity of the French language. Work did not begin on it, however, until December 14, 1637. The editions of the dictionary were seven in number as follows: 1694, 1718, 1740, 1762, 1793, 1835, and 1878. The edition upon which the Academy was at work in 1919, accordingly, was the eighth, and in the autumn of that year it had proceeded as far as the letter F. In 1919 Pierre Masson was elected permanent secretary in place of Pierre Lamy deceased. For further particulars, see the article FRENCH LITERATURE.

ACADEMY OF ARTS AND LETTERS, AMERICAN. This society was founded in 1904 by seven members of the National Institute of Arts and Letters, on the model of the French Academy. Its membership is limited to fifty mem-

bers. In 1909 a series of annual meetings was begun. Mr. William Dean Howells has been president of the Academy since its founding. The annual meeting was held Nov. 19, 1919, in New York. During the year the Academy has lost three of its members: Theodore Roosevelt, Kenyon Cox, and Henry Mills Alden. Three new members were elected: Charles A. Platt, of New York; Maurice Francis Egan, of Washington; and Archer M. Huntington, of New York. This still left one vacancy in the society. During the first part of 1919 a series of lectures were held at the Chemists' Club in New York. Four of these were on "The Victory," three on "The Failure of German Kultur," and one on "The Academy and the English Language." On February 19-22 a commemoration of the centenary of the birth of James Russell Lowell was held in New York. Hon. Elihu Root presided at a dinner on February 20th, while other speakers were John Galsworthy, Maurice Hutton, and Prof. Brander Matthews. Literary exercises were held on February 22nd, the speakers being: William Milligan Sloane, Barrett Wendell, Alfred Noyes, Stephen Butler Leacock, Edgar Lee Masters, and Samuel McChord Crothers. A report of this commemoration was published by the Academy, which also published a book entitled *The World War: Utterances Concerning its Issues and Conduct by Members of the American Academy of Arts and Letters*. The Academy has under way a project to undertake "the work of establishing through local endowments a museum of art in every one of the States (more than thirty) which lack such an institution."

In 1919 the membership list was as follows: William Dean Howells, John Singer Sargent, Daniel Chester French, John Burroughs, James Ford Rhodes, Horatio William Parker, William Milligan Sloane, Robert Underwood Johnson, George Washington Cable, Henry van Dyke, William Crary Brownell, Basil Lanneau Gildersleeve, Woodrow Wilson, Arthur Twining Hadley, Henry Cabot Lodge, Edwin Howland Blashfield, Thomas Hastings, Brander Matthews, Thomas Nelson Page, Elihu Vedder, George Edward Woodberry, George Whitefield Chadwick, Abbott Henderson Thayer, George deForest Brush, William Rutherford Mead, Bliss Perry, Abbott Lawrence Lowell, Nicholas Murray Butler, Paul Wayland Bartlett, Owen Wister, Herbert Adams, Augustus Thomas, Timothy Cole, Cass Gilbert, William Roscoe Thayer, Robert Grant, Frederick MacMonnies, Julian Alden Weir, William Gillette, Paul Elmer More, Barrett Wendell, Gari Melchers, Elihu Root, Brand Whitlock, Hamlin Garland, Paul Shorey, Charles Platt, Maurice Francis Egan, Archer Huntington. The permanent Secretary of the Academy is Robert Underwood Johnson.

ACADEMY OF SCIENCES, NATIONAL. A body of distinguished American scientists incorporated by Act of Congress, March 3, 1863, for the purpose of promoting scientific research and of examining, investigating, and reporting upon any subject of science or art when called upon to do so by any department of the government.

The autumn meeting was held Nov. 10th-12th at Yale University, New Haven, Conn. Among the topics discussed were "Four Cliff Islands in the Coral Seas," by W. M. Davis; "A Study in Synthetic Paleontology," by Richard S. Lull; "A New Method for Determining the Solar Constant of Radiation," by C. G. Abbot; "Defecta-

Found in Drafted Men," by C. B. Davenport and A. G. Love; "Some Restorations of Extinct Vertebrates," by John M. Clarke; "On the Mechanism of Fever Reduction by Drugs," by H. G. Barbour; "Experimental Pneumonia in Monkeys," by F. G. Blake; "Calculating Ancestral Influence in Man," by H. H. Laughlin; "Plato's Atlantis in Paleogeography," by W. D. Matthew; "Changes of Land and Ocean Levels," by R. A. Daly; "Concentration of the Water Soluble Vitamine or Yeast," by T. B. Osborne; "On the Embryological Basis of Human Mortality," by Raymond Pearl; "Endomixis in Relation to Selection in Paramecia," by L. L. Woodruff; "The Activities of the Ions of Largely Ionized Substances," by A. A. Noyes and Duncan MacInnes; "The Relative Physiological Efficiency of Spectral Lights of Equal Radiant Energy Content," by Henry Laurens and H. D. Hooker; "The Adjustment to the Barometer of the Haemato-Respiratory Functions in Man," by Yandell Herderson; "A Kinematic Interpretation of Electromagnetism," by Leigh Page; "A Statistical Method for Studying the Radiations from Radioactive Substances and the X-rays," by A. F. Kovarik; "Lethargic Eucephalitis and Poliomyelitis," by Simon Flexner.

In 1919 there were 173 active members, one honorary member, and 32 foreign associates. There are 15 trust funds totalling \$276,651.52. Officers for 1920 are: President, Charles D. Walcott; Vice-President, A. A. Michelson; Foreign Secretary, George E. Hale; Home Secretary, C. G. Abbot; Treasurer, F. L. Ransome.

ACCIDENTS. See RAILWAY ACCIDENTS.

ACES OF AMERICAN ARMY. See AERO-NAUTICS.

ACLAND, Sir THOMAS DYKE. British member of Parliament, died at Exeter, England, February 18th. He was born in 1842, educated at Exeter and at Oxford, and called to the bar in 1868. He went into politics on the Liberal side and became a member of Parliament in 1882, continuing to sit till 1892. In 1886 he was secretary to the Board of Trade.

ACTIVATED SLUDGE. See SEWERAGE.

ACTORS' STRIKE. See STRIKES AND LOCK-OUTS.

ADELPHI COLLEGE. A non-sectarian institution of learning at Brooklyn, N. Y. In the summer school of 1919 the enrollment was 167 and in the fall that in the women's college was 392. There were 26 members in the faculty. The library contains 17,500 volumes. President, Frank D. Blodgett, LL.D. Adelphi was founded in 1896.

ADEN. A British territory, consisting of a volcanic peninsula on the Arabian Coast, about a hundred miles east of Bab el Mandeb, and forming a part of the Presidency of Bombay. Area, 75 square miles; with the Island of Perim 80,000 square miles; population of Aden and Perim (1911), 46,165. The Protectorate of Aden has an area of about 9000 square miles and a population of about 100,000. It is an important coaling station on the route to the East and is strongly fortified. The chief industry is salt production and next to that comes the manufacture of cigarettes. The trade is mainly transit. In 1917-18 imports of private merchandise by sea were valued at £4,064,758; by land £128,814; imports of treasure £333,218. Private exports by sea in that year were £3,429,175; by land £1062; treasure £174,514. The chief imports

were cotton goods, grain, hides, and skins, tobacco, coal and provisions; and the chief exports were coffee, gums, hides, and skins, cotton goods, and other provisions. The shipping in 1917-18 included 568 merchant vessels of 1,174,891 tons entered, and of these 301 were British. There is a wireless station in Aden maintained by the Protectorate.

ADVANCEMENT OF SCIENCE, AMERICAN ASSOCIATION FOR THE. Founded in 1848, this is an association whose main principle is that in a democracy, where no dependence can be had upon a leisure class, science can only be supported as a result of the organization of scientific men. The association has, since its beginning, done work of the greatest importance in encouraging scientific research and promoting interest in its results. It consists of affiliated national societies which either meet regularly on their own account, or during the annual convention week of the association, which is held at the close of each year. During the last 10 years meetings have been held in Baltimore, Boston, Minneapolis, Washington, Cleveland, Atlanta, Philadelphia, Columbus, New York, and Pittsburgh. There is also a Pacific Coast Division which holds meetings independently in the summer time and a general meeting under its direction was held in 1915.

The annual meeting in 1919 was held in St. Louis on December 29th-31st. Dr. James L. Tryon, of the Massachusetts Institute of Technology spoke on the proposed Lodge reservations to the League of Nations, saying that these reservations did not destroy the covenant, but merely Americanized it. Prof. Wm. H. Hobbs, of the University of Michigan, spoke against the League, quoting from President Wilson, Theodore Roosevelt, Wm. H. Taft, and others. Prof. Charles M. Bakewell, of Yale University, spoke for the League. Frank H. Fayant, of New York City, and editor of the *Railway News Journal*, spoke on "Freight Rates." He denied that increased freight rates had added greatly to the cost of living. He said that "transportation was never before so cheap in relation to prices as it is to-day." Frank W. Noxon, of New York, spoke on the Esch and Cummins bills for the return of the railroads to private ownership. Morris Fay, a prominent New York banker, denounced the excess profit tax as "unjust, unsound, and dangerous." He declared that a tax of 1 per cent on sales would bring the government about \$5,000,000,000 annually, without having a demoralizing effect on capital. The official organ of the association is the weekly journal *Science*. The membership is nearly 15,000.

ADVANCEMENT OF SCIENCE, ASSOCIATIONS FOR THE. Important bodies of scientists in the United States and foreign countries organized for the purpose of promoting the unity of scientific endeavor among the nations. They have been established in the United States, Great Britain, France, Australia, South Africa, and elsewhere. Owing to the war, statistics of the foreign bodies were not available. For the American society, see **ADVANCEMENT OF SCIENCE, AMERICAN ASSOCIATION FOR THE.**

ADVENT CHRISTIANS. See **ADVENTISTS.**

ADVENTISTS. The largest branch of this denomination is the Seventh-Day Adventists. The report of 1919 shows the following figures: 4181 churches with 162,667 members, showing

an increase of 10,000 over 1918; 1102 ordained ministers; 5610 Sabbath schools with a membership of 171,914, showing an increase of over 30,000 over 1918; 1446 Young Peoples' Societies with a membership of 27,879; 41 publishing houses, printing 142 periodicals in 94 languages; 32 sanitariums with 2065 employees including 144 physicians; total funds contributed amounted to \$6,895,719.82 during the year. There are 158 mission fields. There are 77 educational institutions connected with the church, 16 of which carry full college courses, notably Loma Linda College, Pacific Union College, Union College, and Walla Walla College.

Other branches of Adventists are: Adventist Christian Church, with (1916) 30,316 communicants, 640 churches, and 828 ministers (the figures for 1919 being about the same); Adventist Church of God, with about 10,000 communicants, 100 churches and 80 ministers in 1919; Life and Advent Union, with about 700 communicants, 20 churches, and 15 ministers; and the Churches of God in Christ Jesus with about 4000 communicants, 90 churches and 50 ministers.

AERONAUTICS. The record in aeronautics for 1919 is one somewhat difficult to summarize inasmuch as the termination of the war materially changed the aspect and conditions of use, manufacture, and development. Naturally there was considerable reaction attending the demobilization of the aero squadrons of the hostile armies and the partial cessation of manufacturing of war aircraft. On the other hand the problems of peace became more distinct and conspicuous, and an earnest attempt was made to consider the airplane and the dirigible on a strictly utility basis. Government planes were devoted to mail carrying on regular routes, passenger service was attempted, and the large bombing planes of the war were being considered as available for freight or passenger service. Scientific and technical studies continued rather in the nature of improvement of detail and design than to secure radical departures or innovations. Power, capacity and safety were naturally considered of increasing importance, and work along these lines continued. The manufacturing industry was slow in stabilizing itself after the war, and in the United States the failure of the government to settle on a fixed policy as to its control of aircraft and its development in the future was another contributing cause.

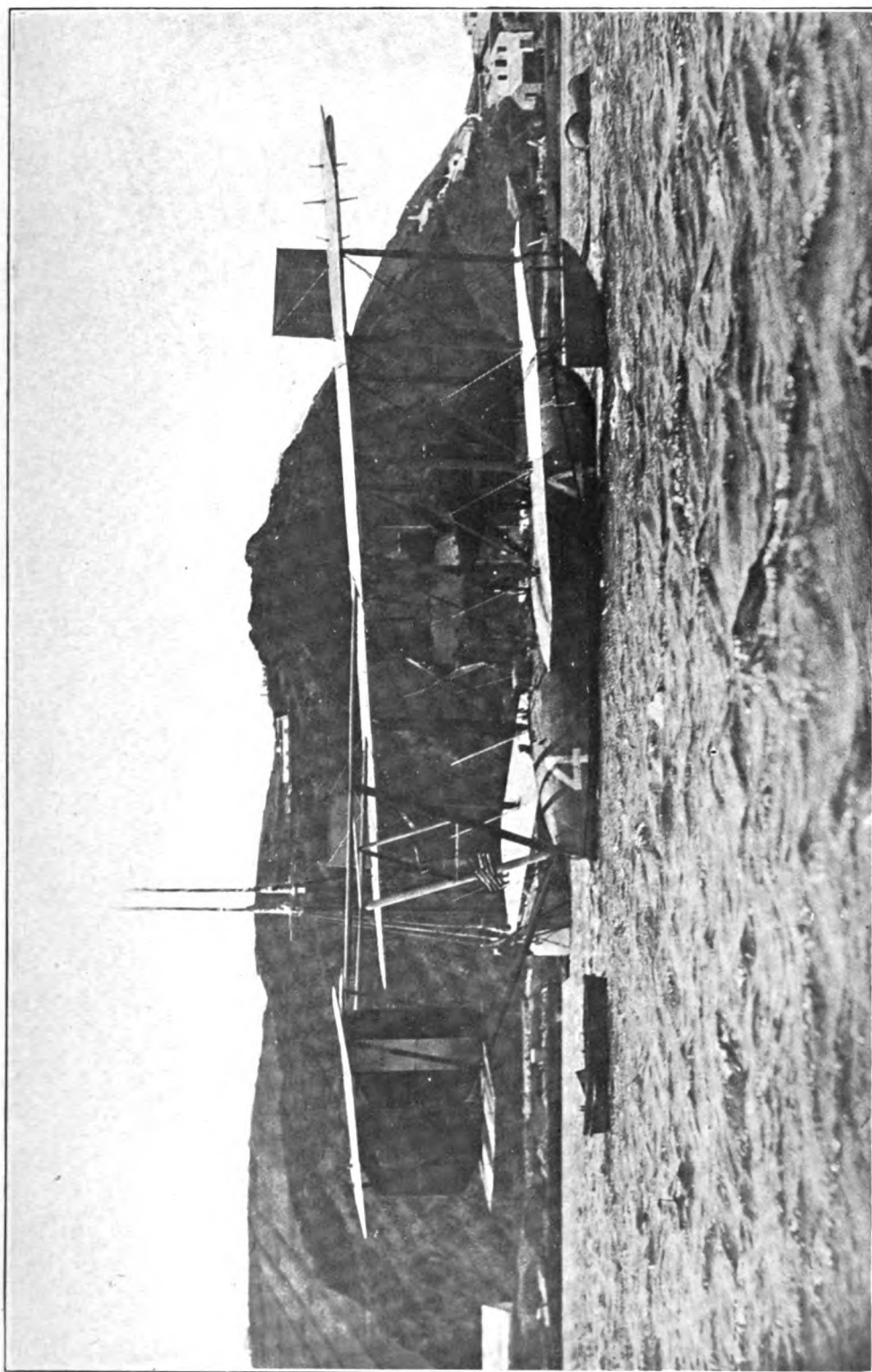
Of course the outstanding events of the year were the notable transatlantic flights by airplanes and dirigibles and these are outlined in the following paragraphs.

TRANSATLANTIC FLIGHTS. The year 1919 was memorable in the history of aviation for the first flights across the Atlantic Ocean by both aeroplane and dirigible. It will be recalled that the year 1909 marked Louis Blériot's successful attempt to cross the British Channel, and in the course of 10 years the science and art of aviation had developed to a point where a sustained flight in the air had become commonplace. The first successful flight across the Atlantic was achieved by aviators of the United States navy using NC flying boats, jointly developed by the United States navy and the Curtiss Engineering Corporation, the N in the designation standing for navy and the C for Curtiss. These flying boats were able to plow through rough water up to a speed of 60 miles per hour, and

then take to the air and fly at a speed of over 90 miles per hour. The hull or boat proper was 44 feet 9 inches in length by 10 ft. beam, with six water-tight compartments in which were the rest quarters, navigating compartment, gasoline tanks and space for the radio apparatus and its operator. A minimum crew consisted of five men, though under certain circumstances extra men could be carried for relief. The wings had a total area of 2380 square feet, while the tail had over 500 square feet area. It was different in design and construction from other flying machines, being made up in the general form of a biplane. There were four Liberty engines mounted between the wings, each having a capacity of 400 brake horse power, so that when the full load of 28,500 pounds was carried, the weight is 17.5 pounds per horse power. There is a tractor propeller on each side of the centre line driven by an engine, and on the centre line itself the two remaining engines are mounted in tandem, the front one driving a tractor propeller and the rear engine a pusher propeller. The principal dimensions and characteristics of the NC type of flying boat are as follows:

Engines	4 Liberty
Power	1,600 h.p.
Wing span	126 feet upper
	94 feet lower
Length	68 feet 5 1/4 inches
Height	24 feet 5 1/2 inches
Weight, empty	15,100 lbs.
Weight, loaded	28,500 lbs.
Useful load	13,400 lbs.
Gravity tank	90 gals. capacity
Fuel tanks	1,800 gals. capacity
Oil tanks	160 gals. capacity

The NC type was developed following a conference between engineers of the U. S. navy and the Curtiss Company held in November, 1917, at Washington, D. C., and in January of the following year a working model was tested in a wind tunnel, and the design was found practical. Machines were straightway put under construction, and in October, 1918, the NC-1 was given a trial flight at Rockaway Beach, Long Island. In the following months this flying boat made a trip from Rockaway to Anacostia, D. C., 358 miles, in 5 hours and 19 minutes. In the meantime other planes of this type were completed, and in February, 1919, the NC-2 was given an altitude trial and climbed 2000 feet in 5 minutes. So satisfactory were the trials of these planes that on February 24th Secretary Daniels ordered four planes to be prepared for the transatlantic flight, and work was begun at Rockaway. On April 3rd the design of the hull of the NC-2 was found impractical and it was taken out of the flight, but the NC-3 and the NC-4 were assembled at Rockaway. The latter was damaged by fire while in the hangar, but the wings were replaced, the elevators repaired, and everything was put in readiness, so that on May 8th at 10 A.M. the three planes, NC-1, NC-3 and NC-4 were able to leave Rockaway for Trepassay Bay, Newfoundland. On account of trouble with the oil feed the NC-4 was forced to make a landing about 100 miles off Chatham, Massachusetts, after a trip of 300 knots. The defect was remedied and a new engine was substituted a few days later, so that on May 14th the NC-4 was able to proceed from Chatham to Halifax in 4 hours and 10 minutes, a distance of 320 knots. The NC-1 and the NC-3 completed their trip from Rockaway to Halifax on the day they started, a dis-



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NC-4 AT ANCHOR IN HORTA, AZORES

tance of 529 miles, and on May 10th they proceeded from Halifax to Trepassey, making 529 miles in 6 hours and 56 minutes for NC-1 and 5 hours and 32 minutes for NC-3. Here the squadron of three planes was again united, and on May 16th they left Trepassey Bay for the Azores, a distance of 1250 miles, starting at 10.03 in the afternoon, Greenwich Civil Time. The NC-4, which was commanded by Com. A. C. Read, U. S. A., reached Horta, Azores, in 15 hours and 13 minutes, with an average speed of 78.4 knots per hour. The other flying boats were not as successful. The NC-1, commanded by Lieut. Com. P. N. L. Bellinger, encountered dense fog and a rough sea, so that the crew was forced to take refuge on a passing steamship, the *Ionis*, which landed them at Horta. The seaplane was so damaged it sank. The NC-3 also encountered fog and heavy clouds, but was able to reach Ponta Delgada under its own power, having drifted and "taxied" 209 miles, and being so much damaged as to be out of the race. On May 20th the NC-4, now the only survivor in good flying condition, made the trip from Horta to Ponta Delgada, 160 miles, in 1 hour and 44 minutes, and then on May 27th flew from Ponta Delgada to Lisbon, Portugal, 810 miles, in 9 hours and 43 minutes, thus completing the transatlantic flight. The flying time from Newfoundland to Portugal, a distance of 2472 miles, was 26 hours, 51 minutes. The reception of the NC-4 at Portugal was most enthusiastic and cordial, and the greatest interest was manifested in both continents over the flight, and congratulations were bestowed at its successful termination. The most careful preparations had been made by the Navy Department, and a patrol of destroyers was organized to maintain stations along the course to communicate by wireless with the flying boats. They were supplied with pyrotechnic and other signals to afford visible marks, and it was believed that the trip could be carried out with a minimum of danger and risk.

The NC-4 left Lisbon on May 30th, and after a halt at Mondego, 100 miles north, owing to engine trouble, proceeded to Ferrol, Spain, 300 miles. On May 31st the NC-4 proceeded from Ferrol to Plymouth, and thus completed the transatlantic flight as scheduled. The total flying time from Rockaway, New York, to Lisbon, Portugal, was 41 hours and 58 minutes, which is comparable with the fastest steamship passage made by the Cunard liner *Mauretania* of 4 days, 14 hours and 27 minutes from Liverpool to New York.

FLIGHT OF THE VICKERS "VIMY" BOMBER. The first non-stop flight from America to Europe was accomplished by the Vickers "Vimy" Bomber, a bi-motored Rolls-Royce aeroplane with two 4-bladed propellers, which was piloted by Captain John Alcock and navigated by Lieut. Arthur W. Brown. The trip started at St. Johns, Newfoundland, at 12.13 P.M., New York time, on Saturday, June 14, and 16 hours and 12 minutes later a landing was made at Clifton, Galway, Ireland, at 4.40 A.M., New York time. The 1960 miles of the Atlantic Ocean were thus navigated at an average rate of 120 miles per hour. The trip was accomplished through fog and mist, but the engines functioned consistently, and the most important mishap was the failure of the radio instruments so that no connection was had with the outside world during the 16

hours of the trip. Captain Alcock and Lieutenant Brown were awarded the *Daily Mail* \$50,000 prize for making the first non-stop flight between Europe and America, and their conclusion, as expressed by Captain Alcock, was "that the Atlantic flight is practicable, but I think it should be done not with an aeroplane or seaplane but with flying boats. We had plenty of reserve fuel left, using only two-thirds of our supply." Captain Alcock had been for many years interested in aviation and aeronautics, starting his experiments with gliders, and in 1911 began to fly. In 1913 he won the first race in which he ever entered, and shortly thereafter took second place in the London to Manchester and return competition. He was the first man to bomb Constantinople, and it was on his return from his second bombing expedition over the Turkish capital that his engine failed, and forced to descend he was captured by the Turks.

The Vickers "Vimy" plane was twin engined and had a 67 feet 2 inch wing spread, being 42 feet 8 inches in length with a gap of 10 feet and a chord of 10 feet 6 inches. It was of the bombing plane type and was transformed for peace work by replacing the fighting equipment with gasoline tanks with a total capacity of 870 gallons. The two Rolls-Royce Eagle 375 horse power engines were mounted between the upper and lower planes on either side of the fuselage. Hollow seamless steel tubing extending from the nose to well behind the planes was used in the construction, and a tank system of eight separate containers from which fuel could be consumed simultaneously at the same rate were important characteristics. A gravity tank at the top of the fuselage was arranged to be emptied first so that it could serve as a life raft any time after the first two hours of the flight. This 1960 mile flight established a new world record, breaking that of Captain Boehm in a Mercedes driven Albatross plane which flew for 25 hours and 1 minute and covered 1350 miles.

ENGLAND TO AUSTRALIA FLIGHT. The prize of £10,000 offered by the Australian government for the first airplane flight from Great Britain to Australia within a maximum time of 30 days was won by Captain Ross Smith flying a Vickers-Vimy Rolls-Royce airplane. This journey of about 11,500 miles was accomplished in 27 days, 20 hours and 20 minutes, the departure being made on November 12th from Hounslow aerodrome and the landing on the northern coast of Australia taking place on December 10th at Port Darwin. The machine traveled by way of Lyons, Rome, Cairo, Delhi, Calcutta and Rangoon, and arrived at Bangkok on December 1st. Leaving on the following day it reached Singapore on the 4th, and then on the 6th proceeded down the coast of Sumatra over the island of Java to Timor from which place the last stage was accomplished. Arrival at Port Darwin did not end the flight which, after a few days' rest, was continued across the island towards Melbourne. In competing for this same prize Captain Howell and a companion who left Hounslow on December 4th met with disaster off Corfu on December 10th and lost their lives.

TRANSATLANTIC FLIGHTS OF THE R-34. The British dirigible R-34 left East Fortune, near Edinburgh, Scotland, at 2 A.M., July 2, and proceeded via Newfoundland to Mineola, New York, arriving at Roosevelt Field at 9 A.M., Sunday, July 6. To show that this was not merely

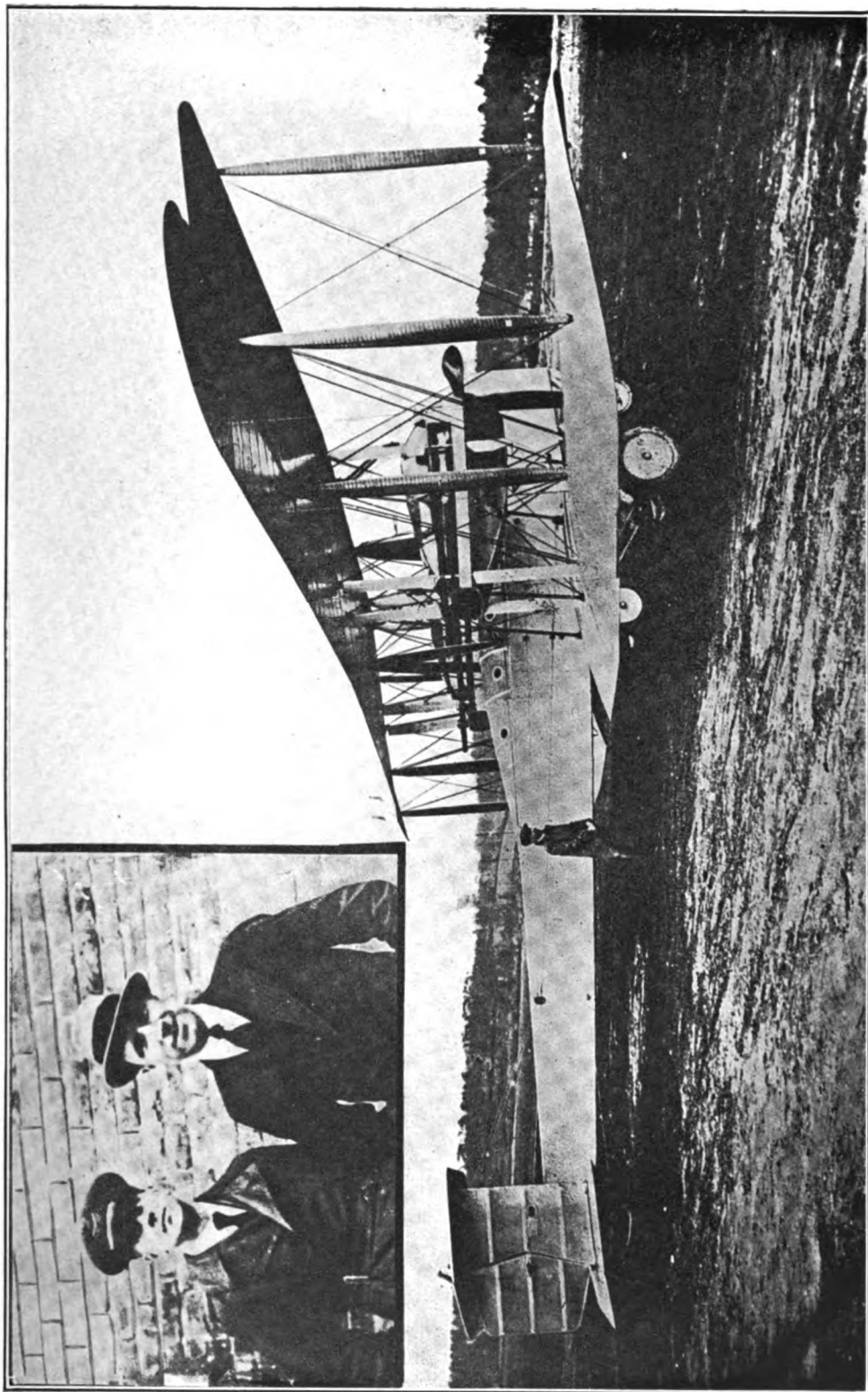
good fortune, a return trip even more successful was made, leaving New York at 11.58 on the night of July 9th. After a brief trip over the city of New York the nose of the dirigible was turned to Great Britain and after a voyage of 75 hours, 3 minutes, a successful landing was made at Polham, England, arriving at 9.15 A.M. on July 12th, a distance of 3200 miles. In other words, the R-34 flew practically 7000 miles in 183 hours and 15 minutes. The journey from Scotland to America was accomplished in spite of fog and heavy squalls and thunder storms and against constant head winds. The speed was thus reduced, so that it was uncertain whether the 5000 gallons supply of gasoline would be sufficient to keep the engines turning until Long Island was reached. Accordingly wireless messages were sent for United States destroyers to stand by on the journey down from the Bay of Fundy, but assistance was not required, and a successful landing was made at the Mineola flying field. The return voyage was without incident, and general satisfaction was expressed at the outcome of the trip.

The British naval dirigible R-34 in 1919 was the largest dirigible afloat, measuring 643 feet from nose to stern, and requiring a hangar 300 yards long. The envelope was built of sheet duraluminum towers 91½ feet in height, and the beam is 71 feet. From the envelope are suspended 4 cars, one forward for the captain and pilot, 2 wing cars amidship, and an after car in which are the two engines attached to the same shaft that drive the largest of the four propellers. The propellers of the forward and wing cars measure 17 feet 6 inches from tip to tip, while that on the after car measures 19 feet 6 inches, and was one of the largest ever made. Five Sunbeam Maori engines of 275 horse power each were used to drive these propellers. The R-34 attains a speed of from 40 to 60 knots an hour, and is capable of reaching an altitude of 15,000 feet, though her best height is 4000 feet. When fully inflated the airship has a capacity of 2,000,000 cubic feet of hydrogen, carries 13 tons of water for ballast, arranged in bags along the keel to keep the airship upright. The lifting power is furnished by 19 separate gas bags inside the rigid envelope. These bags are so partitioned that there is plenty of opportunity for the crew to pass freely throughout the interior of the envelope. There are 81 tanks, which were filled with 5670 gallons of gasoline when the R-34 left England. The airship is lighted throughout by electricity, with telephone and bell connection between the cars, and is rigged with various types of equipment, just as an ocean liner. The wireless of the airship is controlled from the captain's car forward and has a range of 800 miles for sending and receiving. The R-34 has a large beam capacity and carries a crew of 31 men. The officers on the trip to America were Maj. G. H. Scott, commanding officer and pilot; Maj. G. H. Cooke, B.S.O., navigator; Capt. G. S. Greenland, first officer; Lieut. J. D. Shotter, engineer officer; Lieut. H. F. Luck, third officer; while Brigadier-General Maitland and Major Pritchard represented the British Air Ministry and Lieut.-Com. Z. Lansdowne, O.B.E., the United States Naval Air Service. Lieutenant Guy Harris was meteorological officer and Second Lieut. R. D. Durrant was wireless officer. The crew of the R-34 consisted of 12 engineers and 7 recruits, beside 2 wireless men.

FLIGHT OF HAWKER AND GRIEVE. An attempt was made to cross the Atlantic in a Sopwith bi-plane by Com. Mackenzie Grieve and Maj. Harry Hawker. This plane followed the general type of the Sopwith war plane, and was 46 feet wide and 31 feet long, weighing 6000 pounds fully equipped for flight. It was supposed to have a flight duration of 25 hours at 100 miles an hour, and was driven by a Rolls-Royce engine developing 375 horse power and 1800 revolutions of the crank shaft. A 4-bladed propeller was used, geared down to 1281 revolutions. Several test flights were made in March and April which promised success, and on May 18th Hawker and Grieve flew from St. Johns, and after 15 hours in the air were forced to alight on the ocean 1000 miles east of their starting point and 900 miles from their destination. The difficulty was due to the choking of the filter and defects in the circulation system of the engine, and realizing that the motor was functioning improperly, the course was changed so as to cross the main shipping route. Sighting a steamer, which proved to be the Danish ship *Mary*, signals were made and the aviators were taken off in a rough sea, but it was impossible to save the aeroplane. Hawker and Grieve were about 14½ hours from Newfoundland and accomplished about 1000 miles of the journey. The British destroyer *Wolston* made the *Mary* off Loch Eireball and the aviators were duly brought to land.

LOSS OF THE C-5. The American Navy dirigible or Blimp C-5 left Montauk Point on May 14th in an attempt to cross the Atlantic by way of Halifax, at which port it arrived at 10 o'clock on the morning of May 16th, after being in the air almost 26 hours. A perfect landing was made at the Pleasantville base near St. Johns, and the dirigible was duly anchored within an old cricket field. Preparations were straightway begun for the transatlantic flight, but a treacherous gale arose which drove the dirigible from its moorings and carried it out to sea, where it was totally destroyed. The dirigible was under command of Lieutenant-Commander Coil, with Lieutenant Campbell and Lieut. J. B. Lawrence as navigating officers. The total distance of 1050 miles accomplished by the C-5 was a world's record for non-rigid airships as regards total distance covered without a stop. The C-5 was 192 feet long, 43 feet wide and 45 feet high, with a capacity of 180,000 cubic feet of gas. Its cruising speed was 42 miles per hour, and it could climb 1000 feet per minute. The car suspended from the gas bag was of streamline form 40 feet long, 5 feet in maximum diameter, with steel tube outriggers carrying an engine at either end. It had a capacity of 7 passengers, though 4 formed the usual crew. The engines were made by the Union Gas Engine Company, and were 125 horse power each.

TARRANT TRIPLANE. One of the most powerful aeroplanes to be built in 1919 in England was the Tarrant triplane, a huge 6-engined 3000 horse power machine, fitted with six "Napier" Lion engines capable each of developing 507 horse power, and designed to obtain with full load a speed of over 90 miles per hour with two engines cut out. Fully loaded this machine weighed approximately 45,000 pounds, of which 19,000 pounds represented the load, 10,000 pounds fuel, and 9000 pounds available for passenger or cargo. Its maximum speed was over 110 miles an hour, and sufficient fuel was carried to maintain this



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THE VICKERS-VIMY BIPLANE

First Aeroplane to Cross the Atlantic in a Single Flight. Captain John Alcock, Pilot. Lieutenant Arthur W. Brown, Navigator

for over 900 miles, while at cruising speed a distance of 1200 miles could be covered. This was a triplane with the middle plane having a span of 131 feet 3 inches, with a total surface of wings of 4950 feet and an over all height of 37 feet 3 inches and over all length of 73 feet 2 inches. It was designed for a crew of five men provided with wireless equipment, guns and ammunition and bombs and gear, and was considered a machine of unusual power, some 13 months being required for its construction.

On May 26th, during a trial flight, this large machine was seriously damaged, and the chief and assistant pilots, Capt. F. G. Dunn and Capt. P. T. Rawlings, received injuries resulting in their death. At this initial trip it was found impossible to rise from the ground using the four engines, so the two upper engines were brought into operation. When this was done and before the plane could leave the ground, the tail rose up and the nose of the machine crashed downward into the earth while at a speed of over 70 miles an hour. It is believed that if the aeroplane could have risen, all six engines might have functioned; but the results of the initial trial seemed to show that the problems connected with their placing and operation had not been adequately worked out.

LAWSON AIR LINER. This airplane designed, manufactured and operated distinctly as a passenger carrying machine on a commercial basis made a number of interesting trips in the autumn of 1919, proceeding from Milwaukee, Wis., to New York and thence to Washington. It had a capacity of 26 passengers with a comfortable enclosed cabin, and was specially designed for high speed and economy of fuel. It was stated that the machine had reached a point where the trip from New York to San Francisco could be made in 36 hours actual time between cities.

HELICOPTERS. During the year there was announced a prize of \$100,000 to be awarded to the person who should produce and demonstrate the first heavier than air aircraft which would rise from and land on the ground vertically, as for example, rise from and return to the roof of a medium size house. This prize was donated by a French patron and enthusiast of aviation, M. Michelin, who previously had given many valuable prizes for aircraft development and performance, all of which had been won though when first announced the conditions were considered difficult if not impossible of realization. The new prize was offered to the designer or aviator of the first aircraft: (1) to rise vertically from the ground; (2) to possess the greatest possible range of speed up to 124 miles an hour; (3) to land vertically within a radius of five meters.

This of course plainly indicated some form of helicopter or screw machine where the propeller blades or vanes revolved about a vertical axis. Considerable experiment work had been done in this field but the practical achievement was limited in comparison with the vast studies made in other departments of aviation, notably the airplane. However the problem always had a fascination for scientific men and in 1919 there were announced some encouraging results of experiments undertaken by Peter Cooper Hewitt and F. B. Crocker. In 1918 these two experimenters met at Ampere, N. J., and inaugurated a series of tests on a helicopter which presented considerable promise. The machine de-

veloped a lift of 4000 pounds with two motors of 100 horse power each and propellers 51 feet in diameter. The experiments, as announced up to the end of 1919, did not actually involve flight, but the production of lifting power which was accurately measured by dynamometers and weighing mechanisms. Electric motors rather than internal combustion engines were employed in the experimental work so as to secure any desired speed of rotation and measure readily the consumption of power. The two propellers were mounted one above the other on concentric shafts and being respectively right and left screws were revolved in opposite directions. They were placed vertically seven feet apart. The propeller blades were made of an aeroform model, 30 inches wide and about 15 feet long, being built up of aluminum partitions placed transversely and then sheathed. These propeller blades revolve at low angular velocity compared with those of an airplane and the speed of airplane engines would be considerably reduced. Various types of propellers were tested in these experiments and a form finally was produced that gave a lift of 2550 pounds for 126.5 horse power when making but 70 revolutions per minute or 20.2 pounds per horse power. These experiments so far as announced had not proceeded beyond the full size laboratory stage at the end of 1919, but they indicated considerable promise of success as well as progress in this interesting field.

BRITISH CIVIL AVIATION. On May 1, 1919, the resumption of civil flying was officially permitted in Great Britain and a report on the work of the Department of Civil Aviation of the Air Ministry was issued in the late autumn, covering the period from May 1st to October 31st. It stated that the Cairo-Karachi route had been opened for military purposes and would soon be available for civil traffic. A chain of landing places had also been established on the route from Cairo to the Cape, so that it would be possible to fly over the whole of this route, on an experimental basis, in the very near future. The air navigation regulations might need some slight modifications as a result of experience gained with their application, but no serious difficulties had occurred.

In the period under review, 21,000 flights had been made and 52,000 passengers carried. The total number of flying hours amounted to 4000, and the total mileage covered 303,000. No passenger had been killed in civil flying, although 10 were injured, as also were 6 pilots; and 2 pilots were unfortunately killed. The total number of accidents which occurred was 13, or 1 in 1615 flights, a figure which would probably be considerably improved on in the course of time. Only 1 passenger in each 5200 carried was injured, or 1 in each 30,300 miles flown, but in this connection it should be noted that accidents are most likely to occur when starting up or landing, and as the average flight was of short duration (just over 14 miles) the risk of accident was greater per mile flown than would have been the case with ordinary commercial journeys. Experts from the Department were sent to investigate and report on all accidents, and this it was thought doubtless would tend to reduce their number.

MAIL CARRYING BY AÉROPLANE. The termination of the war making available a large number of aeroplanes and trained aviators, it was natural that schemes to utilize both men

and machines should be developed. These plans were both governmental and commercial, the former including the rapid exchange of official communications, mail and even personal representatives at various conferences and parliaments, and the latter passengers on urgent business and newspapers, special communications of immediate importance and light packages. The reliability of the service seemed to be established, and the experience of military aviators and designers naturally was invaluable. The commercial side, however, involved the question of the increased cost of transportation of passengers and freight, and here it was not possible to say by the end of 1919 how much progress had been made. Whether the saving in time could be measured by an appropriate cash value was not always clear, and it was realized that developments in commercial aeronautics must adjust themselves to new ideas of value. As regards mail service, however, it seemed to be unmistakable that such work could be efficiently and regularly carried on, but it must be remembered that in 1919 much was done with machines already constructed for the military service. The transition from the extraordinary and unusual of the war, where expense of construction and operation was a minor consideration, to commercial practice, was still a problem in 1919, though it must be said that further progress towards its solution had been made than in any previous year since aviation had been put on a practical basis.

On May 15, 1919, was celebrated the anniversary of the inauguration of the commercial mail service between Washington and New York. On this occasion the same two aeroplanes were used as started the year previously, and they were propelled by the same motors. One of them during the year had been in the air 164 hours, flying 10,716 miles, and had carried 572,826 letters. It had cost in service per hour \$65.80. Cost of repairs was \$4.80. The other plane was in the air 222 hours, flying 15,018 miles, and had carried 485,120 letters. It cost in service per hour \$48.34, and in total repairs \$1,874.76. The entire service between New York and Washington showed 92.73 per cent of performance during the entire year, representing 128,255 miles of actual travel and 7,720,840 letters weighing 193,021 pounds were carried, the revenues from aeroplane mail stamps amounting to \$159,700, the cost of the service \$137,900.06. On Aug. 10, 1918, the flying operations which had been conducted by the army were taken over by the Post Office Department with a single organization, which maintained from the beginning the record made under the military service. Out of 1261 possible trips, 1206 were undertaken, and but 55 were defaulted on account of weather conditions. During rain, fog, snow, gales and electrical storms 435 trips were made. Out of a possible 138,092 miles 128,037 miles were flown. Only 51 forced landings were made on account of weather and 37 on account of motor troubles. It was brought out in the course of the year's work that for postal and daily cross country service aeroplanes designed wholly for war purposes were not suitable, and the De Havilland-4 machines transferred to the Post Office Department after the signing of the armistice were reconstructed to fit them for commercial requirements. The Department also called for bids for specially constructed mail carrying planes.

It was found that the element of danger involved in the military and exhibition flying was almost entirely absent from commercial flying. No aeroplane carrying the mail had fallen out of the sky during the year, and there had not been a single death of an aviator carrying the mail. The only deaths by accident were those of an aviator who made a flight to demonstrate his qualifications as an aviator and that of a mechanic who fell against the whirling propeller of a machine on the ground. But two postal aviators were injured seriously enough to be sent to the hospital. The experience of a year in the mail service with all types and temperaments of aviators established the fact that 200 feet visibility from the ground was the limit of practical flying, although a number of runs were made with the mail between New York and Washington, during which a part of the trip was flown at as low an altitude as 50 feet. The performance of the various planes used in this service was of interest, demonstrating that under proper conditions adequate life could be secured for a plane.

On July 1, 1919, the New York and Cleveland mail route was established, a distance of 410 miles by air and requiring for the flight from $4\frac{1}{2}$ to 5 hours as against 620.64 miles by train and a train time of 13.05 to 17.20 hours. The Cleveland-Chicago route was established May 15, 1919, a distance of 325 miles by air, requiring a flight of $3\frac{1}{2}$ to 4 hours as against 340.28 miles by rail and 6.35 to 10.30 hours train time. The routing followed in 1919 was for the mail plane to leave New York daily including Sunday between 5 and 6 A.M. with between 12,000 and 14,000 letters, and arrive at Cleveland about 10 A.M. and at Chicago about 1 P.M. the same day. By this service any letters mailed too late to leave New York on the 5.30 P.M. train, are advanced so as to make all noon carrier deliveries in Cleveland and all afternoon carrier deliveries in Chicago as well as advancing connections to the middle West 16 hours and to Seattle, San Francisco, and Los Angeles 24 hours.

The mail plane at Cleveland, in addition to mail originating in Cleveland, takes about 14,000 letters daily from train No. 19, which leaves New York at 5.30 o'clock the afternoon before and is not due to arrive in Chicago until 4 P.M., too late for the regular carrier deliveries in that city, and puts this mail in Chicago daily at 1 o'clock, usually a little before 1 P.M. It also makes train connections which would not have been made had the mail remained on the train.

The eastbound mail plane leaves Chicago daily at 2.30 P.M., which is a considerable time after the departure of the Twentieth Century Limited, and overtakes it at Cleveland with an hour to spare and deposits on that train Chicago city mail and mails from westbound connections. This mail then is delivered by the Twentieth Century Limited in New York City at 9.45 A.M. In this way the New York mail is practically advanced 24 hours.

The eastbound mail plane at Cleveland takes besides letters originating in Cleveland and destined for the east between 12,000 and 14,000 letters from train No. 90-28-32, which left Chicago at 11.31 P.M. the previous night, and delivers it at New York City, usually around 1.30 o'clock that afternoon. Had this mail remained on that train it would not have arrived in New York City until 4.44 o'clock the following morning.

Corresponding advantages are secured by the air mail between New York and Washington. In 1919 the southbound mail plane left New York at 8.40 A.M. with New England midnight mail and New York City mail reaching the post office too late for the 1 A.M. dispatch for Washington, also New York up-State mail arriving on New York Central train No. 32, to the amount of 14,000 letters daily, which are turned over to the Washington postmaster in time for the noon and first afternoon deliveries.

The northbound mail plane was scheduled to leave Washington at 10.40 A.M. with some 14,000 letters daily to New York City, including Washington City letters mailed before 9.30 A.M., and New York City mail worked to carriers arriving in Washington on the Seaboard Air Line and Atlantic Coast Line trains from all the southeastern States from Virginia to Florida. This mail reached New York by plane daily about 1.30 P.M. Had it continued by train to New York it would not have arrived in New York City in time to catch any carrier deliveries.

In connection with the New York and Washington aerial mail route a notable flight was made on December 2nd when a specially built De Havilland-4 airplane belonging to the Post Office Department made the trip between the air mail field at Washington and Belmont Park, New York, 218 miles, in 1 hour and 34 minutes with a load of 630 pounds representing nearly 20,000 letters. The rate of speed was 138 miles an hour, the best record ever made in the American mail service.

On July 18, 1919, Postmaster Burleson reduced the postage rate on aeroplane mail matter to two cents an ounce, or the regular rate for first class mail, thus placing the aeroplane mail service on the same footing with all other means of mail transportation.

On August 14th an innovation in aerial mail service was accomplished when an aeromarine flying boat deposited mail aboard the White Star liner *Adriatic* two hours after it had left the dock at Hoboken, N. J. The scheme was announced to have further possibilities in the delivery of ships' manifests after the ships had left port, as cargo could be taken on to the last moment before sailing and the completed manifests delivered long after they had sailed. A special contrivance consisting of a waterproof bag for the mail and a flexible cable attached to the flying boat and carrying the mail bag was employed, and the sack was deposited by driving the aeroplane directly across the ship's course, so that the flexible cable would encounter a steel wire stretched between the fore and mainmast. The experiment was in every way satisfactory, and the use of the method was seriously considered.

During the strike of the railway employees in Great Britain, an aeroplane mail service was established from London to Bristol, Birmingham, Newcastle, Manchester and Glasgow, in addition to a continental service between London and Paris and London and Brussels. This service was very successful, and on the fourth day of the strike 54 aeroplanes were carrying mail. A charge of two shillings an ounce on each letter was made for this special service. On one day a Handley-Page aeroplane transported to Brussels for Holland and Norway 1400 pounds of mail matter and brought back 2000 pounds. This aeroplane mail service was so successful that the

British newspapers urged that it be retained. It was discontinued, as the train service improved during the latter part of the strike.

The first regular French aerial postal service was inaugurated on Nov. 10, 1919, when mail was transported to England from Bourget, near Paris, and from Hounslow in England to Bourget. There had been for some time previously a regular commercial service, the trips being made in two hours and fifteen minutes. It was also contemplated to establish a regular mail service to Morocco.

COMMERCIAL AERONAUTICS. During the year 1919 the commercial extension of aerial transportation took forward strides. In England the Super-Marine Aviation Works, Limited, established the first flying boat passenger service on the south coast with a fleet of 10 passenger carrying ships, five of which fly on alternate days, enabling the other five to be thoroughly overhauled, examined and tuned up during the day on which they are out of service. A government inspector critically examines each individual machine and passes upon its fitness for flight before it proceeds. The service as inaugurated during the summer of 1919 starts at Woolston, near Southampton, and includes the following ports: To Cowes, 10½ miles; Ryde, 15; Sea View, 17; Bembridge, 19; Sandown, 23; Shanklin, 25; Ventnor, 28; Freshwater, 43; Yarmouth, 18; Bournemouth, 33; Poole, 40; Swanage, 38; Weymouth, 60; from Poole to Freshwater, 23; from Weymouth to Freshwater, 42; from Freshwater to Ventnor, 15 miles. This service, it was hoped, could be extended to France with ports of call at Le Havre, Cherbourg and St. Malo. During the summer this service was waiting on the necessary permission, which was to be granted under the rules of the Allied Air Convention.

On March 1st a daily aerial service between Folkestone, England, and Cologne, Germany, was instituted with four aeroplanes, which carried between them 25 bags of mail, but this amount was increased, so that for the three months ending May 31st, 2276 outward and 886 inward bags were transported. This service made possible the delivery of correspondence leaving Cologne one morning to all parts of England and Wales by the first delivery on the following morning.

The American Express Company during the year completed arrangements for a daily air passenger and baggage service between London and Paris, so that a person could leave London and fly to Paris and transact business there and return to London in time for dinner. This service was announced to begin in October, and was to provide an aeroplane carrying one or two passengers and costing about \$100 for a flight one way, and a larger machine carrying 15 passengers, for which the fare was to be about \$60 per person. The latter, known as the air bus, was to leave three times a week, while single passenger carrying aeroplanes would fly daily from the aerodrome. This service was to be in connection with a special automobile service to carry passengers from their hotels to the aerodromes on the outskirts of London and Paris. The general scheme provided for a special form of ticket whereby the passengers assumed the risk of the journey, and the luggage was limited to a single piece of baggage about the size of a suitcase. Those traveling in the fast aeroplanes would have to wear a

head mask and goggles, but those in the air bus would not require any special equipment. The time for the flight was to be between three and four hours, in place of the boat and train running time of about nine hours between London and Paris. The ticket for each trip cost about \$20. It was reported that the American Express Company, through its tourist department, was contemplating the establishment of air lines from Liverpool and Southampton to London.

In Germany an aero passenger service was inaugurated between Berlin and Hamburg in March, during which month 108 flights were successfully carried out and loads of no less than 3737 kilograms were carried. The percentage of failures to complete the trip was stated as only 6.1. This and other services were operated by the Deutsche Luft Rederie, a combination of various firms of German aeroplane manufacturers, which was thoroughly organized both as regards plan and operation. The various lines in operation extended from Berlin to such points as Weimar, Frankfurt, Leipzig, Warnemunde, Hanover, Westphalia and Breslau, in addition to the service to Hamburg already referred to. There were also services from Weimar to Hamburg, Hamburg to Warnemunde, Weimar to Leipzig and Hanover to Westphalia. The Berlin-Weimar route was placed in operation about the beginning of February, and in its first month 120 flights were attempted, of which only 18 were unsuccessful, and no accidents whatsoever were recorded. The Berlin to Hamburg trip cost 450 marks, with a return ticket 700 marks, while serial tickets available over any of the routes operated by the syndicate could be had for 3600 marks and were transferable.

A practical application of the aeroplane was made on July 12th by Jasper C. Mayer, of Washington, D. C., who, missing the steamship *Kashimura Maru* at Seattle, embarked on an aeroplane and overtook the vessel on its way down the Sound. The belated traveler was able to catch the vessel, and at an expense of \$75 was saved a delay of several weeks until the next sailing.

During the middle of the summer a passenger airship was announced to sail from Barrow-in-Furness to Rio Janeiro, which would take 20 passengers and a small cargo. The announced route was by way of Lisbon, Sierra Leone and thence to Rio Janeiro, and the time of flight was estimated at about four days each way. This trip was in the nature of a trial, and if successful a regular service was to be maintained by the Vickers Company, which managed the undertaking. The price of the tickets was £1000 apiece. This special airship, or the R-80, was built at the Vickers-Barrows Works Company by the British Admiralty, with the object of securing a rigid British airship of medium dimensions which would compare with the latest German Zeppelin. The R-80 had a capacity of 1,250,000 cubic feet, or somewhat more than half the size of the R-34. She had a cruising speed of 46 miles and a full power speed of 60 miles an hour, and was 535 feet in length. The passenger accommodations on top of the hull include a large saloon arranged like a Pullman car, a roof garden, a shelter deck and cabins of sleeping berths.

Another British regular air service between London and Paris was organized during the

year by Aircraft Transport and Travel, with General Fostling managing director. Parcels express machines were to leave London at 4 A. M., arriving in Paris two or three hours later, and carried a cargo of 900 pounds, consisting of newspapers or rapid express matter. The plan was to provide space for a passenger or two, but the passenger machines proper would leave later in the day and would have enclosed saloons. This company proposed an alternative ground and sea route when fog or storm made flying impossible, and had as its pilots a number of men chosen for the most part from those of the communication squadron between London and the Peace Conference.

LARGE BRITISH AIRSHIPS. During the year the British Admiralty decided to build a fleet of eight airships larger than anything previously attempted in cars of this class. Three of these huge dirigibles were under construction, one at Beardmore's, one at Bedford, and a third, which is the largest, at the Armstrong Whitworth Works at Barlow in the West Riding of Yorkshire. By the summer of 1919 this dirigible was well advanced and the girder work almost finished. She was 694 feet long, 85 feet in diameter, and had a gas capacity of over 3,000,000 cubic feet. There were seven cars or gondolas, three on each side and one in the centre forward devoted to the controls and the navigation officers. The propelling power was to be six Sunbeam Cossack engines, each capable of developing 400 horse power and a speed of about 70 miles per hour. A fuel capacity of 30 tons could be provided, and it was the intention of the Admiralty to place these airships on regular mail service. The R-39 was to be completed in 1919, and the remaining were to be finished and launched in 1920.

UNITED STATES PURCHASES R-38. During the year the United States Navy Department arranged to secure from Great Britain the R-38, the world's greatest airship which resembled the R-34 in many respects but was larger and had greater horse power, speed, and radius of action. The R-38 was designed for a gas capacity of 2,724,000 cubic feet, was 694 feet long, 86 feet in diameter, 93 feet six inches high and a useful load capacity of 45 tons. The airship was expected to develop a maximum speed of 60 knots. Congress had appropriated \$2,500,000 for the purchase of the airship and for the training of the pilot, and the British Air Ministry offered to train the personnel so that the dirigible could be taken over by an American crew and flown directly to the United States. A hangar at Lakewood, N. J., was under construction by the Navy Department for the R-38.

ALTITUDE RECORDS. During the year 1919 a number of important records in aviation were made. On August 2nd Major R. W. Schroeder, a United States army aviator, flew at Dayton, Ohio, at a rate of 137 miles an hour at a height of 18,400 feet. A two-seated Lepere biplane designed by Captain Lepere, of the French army, was used, which was driven by a 12-cylinder Liberty motor, using a supercharger. This last device consists of a gas turbine and centrifugal compressor, which derives its power from the red-hot exhaust gases of the Liberty motor. The compressed air is fed into the carburetor at the same pressure as at sea level, so that there is plenty of oxygen regardless of altitude. The device was designed by Dr. Sanford A. Moss.

Major Schroeder's flight was in company with Lieutenant G. W. Elfe, an expert aeronautic observer.

The altitude record set by Major R. W. Schroeder at McCook Field, Dayton, Ohio, on September 18, 1918, with an altitude of 28,000 feet made in an American built British Bristol fighter equipped with an American built Hispano-Suiza motor, was broken on July 30th, 1919, by Roland Rohlfs. This record was made in a Curtiss 400 horse power triplane at Roosevelt Field, Long Island, on July 30th, when, in the face of a 100-mile an hour gale, an official altitude of 30,700 feet was accomplished. This was said to be the first time an officially observed flight in excess of 30,000 feet had been made, and stands as an American record, but it does not surpass the altitude record of 33,136 feet made on June 14th, 1919, by Adjutant Casale at Villa Coublay, France. Rohlfs's machine was a Curtiss triplane of the type known as the Wasp, which was designed as a two-plane fighting machine for the American forces, and was completed just before the signing of the armistice. Naturally the aviator employed an oxygen mask and encountered a temperature of 25 degrees below zero, which chilled his motor and made navigation at the higher levels exceedingly difficult.

This altitude record was supplanted by Roland Rohlfs on Sept. 18, 1919, at Roosevelt Field, Long Island, when a height of 34,160 feet was attained. This flight was made in a Curtiss Wasp triplane equipped with a Curtiss K-12 400 horse power motor, and was officially observed, confirmed and homologued by the officers of the Aero Club of America and the Internationale Federation Aéronautique. Both aeroplane and motor were designed and built in America, and the entire flight, reaching more than $6\frac{1}{2}$ miles above the level of the sea, was made in one hour and 53 minutes, with 20 minutes of the time at the highest altitude ever reached, in a temperature of 43° below zero. Rohlfs found perfect conditions, and began taking oxygen at 20,000 feet. He required 75 minutes to reach his greatest altitude and 18 minutes to descend. This flight exceeds Rohlfs's official record of 30,700 feet made on July 30th, and the official record made by Adjutant Casale, of the French army, on June 14, 1919, in a Renault plane with 150 horse power at Villa Coublay, of 33,136 feet. This last flight is 5610 feet higher than Mount Everest, in the Himalaya Mountains,—the highest mountain in the world. Rohlfs is the chief test pilot of the Curtiss Company, and during the year conducted a series of flights with the aim of making altitude records. Subsequent to the record referred to above, in an attempt to secure

a rapid rate of flying, Rohlfs rose to a height of 19,500 feet in nine minutes, 42 $\frac{3}{4}$ seconds, or at a rate of over 2000 feet a minute.

PROPOSED DEPARTMENT OF AERONAUTICS. The subject of the attitude of the national government towards aeronautics, both military and naval and commercial and scientific, gave rise to considerable discussion during the year 1919. Senator New introduced in the Senate on July 31st a bill to create a Department of Aeronautics. This bill defined the powers and duties of the director, and provided for the organization, disposition and administration of a United States air force, creating the United States Air Reserve Force, and providing for the development of civil and commercial aviation. To this Department of Aeronautics would be transferred the various officers and enlisted men of the army, navy, post office and other services now engaged in aeronautics, and it would be responsible for the development and control of aeronautics generally throughout the United States. The bill provides in considerable detail for the organization of the department and its various officers and other personnel.

ARMY RELIABILITY RACE. On the morning of October 8th, there was started a 2700 mile race across the American continent between Mineola, Long Island, New York, and San Francisco, simultaneous starts being made at each place. Any army pilot who secured the written recommendation of the commanding officer of the field to which he was attached was eligible to compete and the aeroplanes employed must have a speed of 100 miles an hour or greater and motors must be of standard specifications. Compulsory stops of not less than 30 minutes nor more than 48 hours were required en route in either direction at the following control stations: Binghamton, Rochester, and Buffalo, N. Y.; Cleveland and Bryan, Ohio; Chicago and Rock Island, Ill.; Des Moines, Iowa; Omaha and North Platte, Neb.; Sidney, Cheyenne, Olcott, Rawlins and Green River, Wyo.; Salt Lake City, Utah; Salduro, Battle Mountain and Reno, Nev.; and Sacramento and San Francisco, Cal. In order to equalize conditions the race was made for the round trip and the accompanying summary indicates the relative performances. The transcontinental race attracted considerable attention and while there were accidents several of which were attended by fatalities, nevertheless the competition was interesting as showing the progress of American military aviators during and after the war.

The War Department announced the winners in the army reliability test race in the following divisions:

WINNERS ON ELAPSED TIME—EAST TO WEST

	Pilot	Passenger	Type of Mach.	Ds.	Time		
					Hrs.	Min.	Sec.
1	1st Lt. B. W. Maynard	Sgt. W. E. Klein	DH-4	3	6	47	7
2	2d Lt. Alex. Pearson	Sgt. Royal Atkinson	DH-4	4	4	23	—
3	Capt. John O. Donaldson	None	SE-5	4	4	51	8
4	Capt. H. C. Drayton	2d Lt. L. J. Sweeley	DH-4	4	7	25	29
5	2d Lt. E. H. Manselman	CSM. M. C. Goodnough	DH-4	4	7	35	50
6	*Capt. Harry Smith	Capt. T. W. Allen	DH-4	4	11	28	58
7	2d Lt. L. S. Webster	Sgt. Chas. Tindell	DH-4	4	12	13	8
8	Lt.-Col. T. S. Bowen	Capt. D. H. Young	DH-4	4	5	12	54
9	2d Lt. H. W. Sheridan	2d Lt. F. W. Nelson	DH-4	6	—	7	50
10	Lt.-Col. J. N. Reynolds	1st Lt. R. B. Bagby	DH-4	6	1	30	55
11	2d Lt. S. W. Torney	Sgt. E. R. Vanatta	DH-4	7	4	28	36
12	*1st Lt. J. T. Roulett	ME. O. W. Haynes	DH-4	7	8	55	7

* Disqualified for not circling landing field.

	<i>Pilot</i>	<i>Passenger</i>	<i>Type of Mach.</i>	<i>Des.</i>	<i>Time</i>		
					<i>Hrs.</i>	<i>Min.</i>	<i>Sec.</i>
13	2d Lt. Wm. O. F. Brown....	Corp. E. J. Robbins.....	DH-4	7	9	38	17
14	Major Edwin B. Lyon.....	2d Lt. H. B. Chandler.....	DH-4	7	28	26	85
15	1st Lt. H. H. George.....	Sgt. Lee N. Parrish.....	DH-4	8	1	39	25
16	2d Lt. J. B. Wright.....	Sgt. B. Coleman.....	DH-4	8	2	49	51
17	2d Lt. T. Hynes.....	2d Lt. T. K. Mathews.....	DH-4	8	3	42	17
18	Lt.-Col. H. E. Hartney.....	None.....	Fokker	8	7	35	46
19	1st Lt. D. B. Gish.....	Sgt. Pomeroy.....	DH-4	9	1	—	57
20	1st Lt. G. H. Gale.....	2d Lt. W. E. Richards.....	DH-4	9	4	37	—
21	Capt. Felix Steinele.....	Sgt. H. Myers.....	DH-4	9	6	20	—
22	2d Lt. L. V. Beau, Jr.....	Pvt. J. J. McVeigh.....	DH-4	9	7	6	50
23	1st Lt. R. L. Maughan.....	None.....	Spad	9	7	8	5
24	1st Lt. G. B. Newman.....	Capt. H. H. Page.....	DH-4	11	4	17	—
25	2d Lt. Fred O. Nelson.....	1st Lt. Sam M. Lunt.....	DH-4	12	2	12	—
26	2d Lt. J. B. Machle.....	Sgt. J. D. McClure.....	DH-4	12	5	28	—

WINNERS ON ELAPSED TIME—WEST TO EAST

1	Major C. Spatz.....	Sgt. E. Tanner.....	DH-B	8	8	41	30
2	2d Lt. E. O. Keil.....	Sgt. F. McKee.....	DH-4	8	8	44	10
3	Capt. L. H. Smith.....	1st Lt. F. W. Ruggles.....	DH-B	4	—	57	42
4	2d Lt. H. E. Queen.....	ME. L. E. Bishop.....	DH-4	4	3	48	28
5	2d Lt. R. S. Worthington.....	None.....	SE-5	4	4	22	8
6	Major J. O. P. Bartholf.....	None.....	SE-5	5	7	24	8
7	1st Lt. J. P. Richter.....	2d Lt. J. B. Patrick.....	DH-4	9	6	15	25

WINNERS ON ELAPSED TIME—ROUND TRIP

1	1st Lt. B. W. Maynard.....	Sgt. W. E. Klein.....	DH-4	9	4	26	5
2	Capt. John O. Donaldson.....	None.....	SE-5	10	—	15	8
3	Capt. L. H. Smith.....	1st Lt. F. W. Ruggles.....	DH-B	11	—	51	58
4	2d Lt. Alex. Pearson, Jr.....	Sgt. R. Atkinson.....	DH-4	12	—	44	30
5	2d Lt. H. E. Manzelman.....	OSM. M. O. Goodnough.....	DH-4	12	4	18	50
6	Lt.-Col. Reynolds— Lt. Bagby.....	Sgt. L. N. Parrish.....	DH-4	20	3	33	—
7	Lt.-Col. H. E. Hartney.....	None.....	Fokker	20	6	24	—
8	2d Lt. R. S. Worthington.....	None.....	SE-5	20	7	14	—

COMPLETED ROUND TRIP BUT NOT WITHIN TIME LIMIT

9	1st Lt. D. B. Gish.....	Sgt. Pomeroy.....	DH-4				
10	Capt. Felix Steinele.....	Sgt. H. Myers.....	DH-4				

† Disqualified—away from Control Stop for over 48 hours.

NATIONAL BALLOON RACE. This competition for free balloons was started on October 2nd at St. Louis with entries from 10 American cities. This race which was organized by Major A. B. Lambert, a veteran balloonist, was started by Captain Charles J. Glidden, the president of the American Touring Association.

TRANSCONTINENTAL AERIAL DERBY. During the year the plans for a Transcontinental Aerial Derby from New York to San Francisco, with over \$100,000 in prizes and a first prize of \$20,000, were announced by Captain Charles J. Glidden, who offered to contribute a trophy appropriate to the competition. This competition was to be held under the auspices of the Aerial League of America and sanctioned by the Aero Club of America under the rules of the International Aeronautic Federation. It was to be international in character, and designed to afford a supreme test of the aeroplanes and motors entered. It was proposed to have the competition take place in a series of legs of 250 miles each, with a compulsory stop at the end of each leg, and detailed rules for the Glidden Aéroplane Efficiency Trophy were being drawn by a committee of which Major R. G. Landis was chairman.

ACES OF THE AMERICAN ARMY. In October, 1919, there was published the official list of American aviators who had destroyed enemy airplanes and balloons under conditions enabling official recognition and sanction of the accomplishment to be made, so that the list is most conservative and does not include many machines brought down but not officially certified. On this roll were 66 names, including those who served with the British and French.

In all 428 German planes and 55 observation balloons were brought down by American aviators. The official list follows:

<i>Acce and Squadron</i>	<i>Planes</i>	<i>Balloons</i>	<i>Total</i>
Capt. Rickenbacker, E. V., 94th...	22	3	25
Second Lt. Luke, Frank, 27th...	4	14	18
Major Lufberry, Raoul, 94th...	17	..	17
*First Lt. Vaughn, G., 17th...	12	1	13
First Lt. Kindley, F., 148th...	12	..	12
First Lt. Putnam, D., 139th...	12	..	12
First Lt. Springs, E., 148th...	11	..	11
*First Lt. Landis, Reed, 40th...	9	1	10
First Lt. Swaab, J. M., 32d...	10	..	10
First Lt. Wright, O. E., 98d...	8	1	9
First Lt. Baer, P. F., 103d...	9	..	9
First Lt. Cassidy, T. G., 28th...	9	..	9
First Lt. Clay, H. R., 148th...	8	..	8
*First Lt. Hamilton, L., 8d...	5	3	8
First Lt. Wehner, Joseph, 27th...	2	6	8
*Second Lt. Donaldson, S., 32d...	7	1	8
Second Lt. Jones, C., 32d...	8	..	8
First Lt. Hunter, F. O. D., 103d...	7	1	8
First Lt. Beane, J. B., 22d...	6	2	8
Major Meissner, J. A., 147th...	7	1	8
Capt. Coolidge, H., 94th...	5	3	8
Second Lt. White, W. W., 147th...	7	1	8
Second Lt. Burdick, 17th...	7	..	7
First Lt. Lerner, 103d...	7	..	7
First Lt. Holden, L. C., 95th...	2	5	7
First Lt. Erwin, W. P., 1st...	7	..	7
First Lt. Creech, S. O., 148th...	7	..	7
First Lt. Cook, H. W., 94th...	4	3	7
First Lt. Chambers, Reed, 94th...	6	..	6
First Lt. Campbell, D., 94th...	6	..	6
First Lt. Rummell, L. J., 93d...	6	..	6
First Lt. Stenseth, M., 28th...	6	..	6
First Lt. Stovall, W. H., 13th...	6	..	6
First Lt. Guthrie, M. K., 13th...	6	..	6
Second Lt. Hays, F. E., 13th...	6	..	6
First Lt. Hammond, L. O., 91st...	6	..	6
First Lt. Robertson, W. A., 139th...	6	..	6
First Lt. Curtiss, E. F., 95th...	6	..	6
First Lt. Sewall, S., 95th...	4	2	6
Second Lt. MacArthur, J., 27th...	6	..	6
Capt. Vasconcelis, J. O., 27th...	5	1	6
Second Lt. Knotts, H. C., 17th...	6	..	6
Second Lt. Ponder, W. T., 103d...	6	..	6

<i>Ace and Squadron</i>	<i>Planes</i>	<i>Balloons</i>	<i>Total</i>
First Lt. Tobin, E. G., 103d.....	6	..	6
First Lt. Grey, C. J., 218th.....	4	1	5
First Lt. O'Neill, R. A., 147th.....	5	..	5
Second Lt. Porter, K. L., 147th.....	5	..	5
First Lt. Healy, J. A., 147th.....	5	..	5
First Lt. Furlow, G. W., 103d.....	5	..	5
Second Lt. Todd, R. M., 17th.....	4	1	5
Major Hartney, H. E., 27th.....	5	..	5
Capt. Peterson, O. K., 95th.....	5	..	5
First Lt. Buckley, H. R., 95th.....	4	..	5
First Lt. Knowles, J., 95th.....	5	..	5
Capt. Strahm, V. H., 91st.....	5	..	5
Second Lt. Badham, W. T., 91st.....	5	..	5
First Lt. Cook, E. R., 91st.....	5	..	5
First Lt. Lindsay, R. O., 139th.....	5	..	5
First Lt. Schoen, K. J., 139th.....	5	..	5
First Lt. Searley, J. J., 13th.....	5	..	5
*First Lt. Bair, H. L., 24th.....	5	..	5
*First Lt. Luff, F. E., 74th.....	3	2	5
First Lt. Ralston, O., 148th.....	5	..	5
First Lt. Bissell, O., 148th.....	5	..	5
Major Thaw, William, 103d.....	4	1	5
First Lt. Brooks, A. R., 22d.....	5	..	5

*Royal Air Force.

CASUALTIES OF AMERICAN AVIATORS. The official list of losses suffered by the American army in its aviators showed that there were 32 fliers killed and 39 injured in accidents behind the lines. In action with the enemy 187 fliers were killed, 133 wounded, 47 marked missing and 145 taken prisoner by the Germans. This list is as follows:

	<i>Killed</i>	<i>Wounded</i>	<i>Missing</i>	<i>Prisoners</i>
With independent air force	8	2	2	7
With French squadrons	11	13	..	1
With R. A. F. squadrons	15	12	7	14
With 17th, B. E. F. squadron	8	6	8	8
With 148th squad. B. E. F.	3	3	1	4
With Italian A. F.	2	..	..	1
First Army A. E. F.	145	97	34	106
With Second Army A. E. F. Eighth Squad ..	..	..	..	4

DEATH OF CAPTAIN ALCOCK. Captain Sir John Alcock, the first aviator to make a non-stop aeroplane flight across the Atlantic, later in the year on December 18th, 1919, met with an accident when his plane crashed near Cotevard, Department of Seine Inferieure, Normandy, while flying low in a heavy fog and unable to sight the earth. Captain Alcock received such injuries that he died on the following day.

AEROPLANE. See AERONAUTICS.

AFGHANISTAN. A monarchy of Central Asia between parallels 29°, and 38° 28' north latitude and 61° and 72° east longitude, with a narrow strip running to 75° east longitude; bounded on the west by Persia, on the east by tribal districts under the government of India; on the north by Russian territory and Bokhara, and on the south by British Baluchistan. Area estimated at about 245,000 square miles; population estimated at about 6,380,000. Capital, Kabul; population about 150,000; other large cities: Kandahar (31,500), and Herat (20,000). The Afghans are the dominant race, their leading tribes being the Durrani and Ghilzai, whose number is variously estimated at from 2,200,000 to 3,200,000. Tribes of less numerical importance are Tajik, Hazara, Aimak, and Uzbek. Persian and Pushtoo are the leading tongues and the religion of people and ruler is Sunnite Mohammedanism. Justice is dispensed on the principles of the Koran. There are many fertile plains and valleys although the

country is for the most part mountainous. The chief occupations are agriculture and grazing, and the chief products are rice, wheat, barley, millet, and other grains together with a rich variety of fruits, the latter supplying the chief food of a large class of people and being exported to a considerable extent. The land is cultivated by four classes: Proprietors who till their own fields; tenants in the ordinary sense renting either for money or for a portion of the produce; a class of tenants corresponding to the French *métayers* who are known as *Bazgars*; and finally hired laborers. Sheep-raising is important owing to the abundance of a singular variety of fat tailed sheep, native to the country, which supplies the chief meat diet, and abundant grease. Iron and gold are worked to some extent, and copper is reported abundant in the northern part of the country. Among other industries are the production of silks, felts, carpets, and articles of goats' and camels' hair; and at Kabul there are other manufactures for local consumption and for the army. The chief exports are timber, fruit, vegetables, grains, *asafetida*, and other drugs, animal products, spices, and tobacco; and the trade, which is chiefly with India, has increased of late years. The leading imports are cotton goods, indigo and other dye-stuffs, sugar, tea, hardware, leather, and silver treasure. The above applies to commerce with India alone. No later figures were available than those given in the preceding YEAR BOOK relating to the trade with India. According to these in 1916-17 the exports into India were £1,144,000, and the imports from India were £1,150,000. The imports and exports from and to Bokhara were reported respectively at about 4,000,000 rubles. The expansion of trade in late years has been attributed to the removal of some of the heavier duties which formerly restricted it. The executive powers are in the hands of the Ameer, an hereditary prince who receives an annual subsidy from the Government of India of 1,800,000 rupees, under the treaty of 1893. His total revenue is estimated at between 12,000,000 and 13,000,000 rupees. The strength of the Afghan army was placed at about 98,000 men, including 18,000 cavalry and 396 guns. The control of foreign policy rests entirely in the British government of India. Down to the early part of 1919 the ruler was Habibullah Khan, who came to the throne on Oct. 3, 1901, but on Feb. 20, 1919, he was assassinated (see below under *History*), and was succeeded by his third son, Amanullah Khan.

HISTORY

THE NEW RULER. On February 20th, the Ameer, Habibullah Khan, was assassinated while sleeping in camp about 40 miles from Kabul. This was followed by the news that the throne had been assumed by his brother, Nasrullah Khan, despite the fact that the heir to the throne was the Ameer's son. Nasrullah had for a long time past shown ambitious designs and a hostile attitude toward Europeans. After the outbreak of the war he headed a party that tried to force the Ameer to the aid of Turkey. The Ameer remained loyal, however, and down to 1919 the situation of the country was satisfactory from the British point of view, in spite of hostile intrigues. During the pre-

ceding year the country had been in general free from sedition, and it had subscribed a considerable sum to the war loan. Nasrullah proclaimed himself Ameer at Jellalabad, and there was danger that the country would be torn into rival factions. The policy at that time outlined by the British government was that of non-interference although the hostility of the new pretender toward Great Britain was well known. Meanwhile Amanullah Khan, the third son of the late Ameer, having secured the support of a large part of the army, announced his accession. On the other hand Nasrullah was said to have great influence among the armed tribesmen throughout the country and among the Mullahs. It was soon learned, however, that Nasrullah had submitted to the new Ameer. The latter gave assurance that the friendly policy of his predecessor would be continued. The new Ameer, Amanullah Khan, was born June 1, 1892, and during recent years had been left by his father in charge of Kabul, when the court removed to Jellalabad.

AFGHAN HOSTILITIES. Amanullah was supported by the army and controlled the treasury and the arsenal. On succeeding to the throne he declared the complete independence of his country, claiming also that he was called upon to free India from the horrors of revolution and from the tyranny of British rule. A body of Afghan troops crossed the border, May 2, and received some half-hearted support, but the tribesmen for the most part held aloof. The use of aeroplanes and the bombing of their forces at Jellalabad, Dakka, Kabul, and at other important points, soon produced their effect and on May 15th their commander-in-chief asked for a cessation of hostilities. This was refused, as the request had not come from the Ameer. Fighting now took place in the south in the regions of Khost, Kurram, and Zhob, and the British garrison in Thal was threatened. The enemy was soon routed in Thal, however, and one of his strongest posts was captured. On May 28th, the Ameer sent a letter to the Viceroy enclosing a copy of his order to his generals to cease fighting but putting the blame for the hostilities on the British. After some hesitation over the British terms and an evasive reply on July 18th, he wrote on June 29th expressing the hope that the Viceroy would fix the date for the reception of his envoys. He still referred to the one-sided nature of the armistice conditions. Discussions began, July 26, and the British conditions were accepted, August 8. See INDIA, BRITISH (*History*).

AFRICA. For discussion, see ABYSSINIA; LIBERIA; SOUTH AFRICA, UNION OF; EXPLORATION; and the titles of the component parts of Africa.

AFRICAN METHODIST EPISCOPAL CHURCH. See METHODISTS, Colored.

AGRICULTURAL COLLEGES. See AGRICULTURAL EDUCATION.

AGRICULTURAL CREDIT. The immediate demand for food products in large quantities in the past few years necessitated the extension of financial credit to the farmers of all countries. The Continent had had a credit system with this purpose in view in operation for a number of years, while in the United States the Federal Land Bank Act approved by Congress in July, 1916, and put into operation in February, 1917, was hardly organized long enough

to consider it fully prepared for this unusual emergency. Capital was needed in large quantities at reasonable rates of interest to enable the farmers to work their land at maximum capacity, and it was to meet such a possible situation that Congress had approved the Federal Land Bank Act. A description and résumé of the act may be found in the 1918 YEAR BOOK. The act has succeeded both in improving the method of making loans and in reducing to approximate equality throughout the United States, the cost of borrowing on farm mortgage security. The aim of the act cannot be fully realized until the methods of scientific farming become known to the average small farmer who will then be able to utilize these loans to greater advantage than he now does. The present tendency among a number of small farmers is to take loans, thus increasing their total indebtedness, without carefully investing the money so as to increase their productive and earning capacity in a like or greater ratio.

FEDERAL RESERVE ACT. Short term agricultural credit has been provided for according to the provisions of the Federal Reserve Act which has made it possible for member banks to discount notes, drafts, and bills of exchange issued or drawn for agricultural purposes or based on live-stock, and having a maturity not exceeding six months. In this way the short term paper of the farmers has found a desirable channel to the commercial banks where it can be readily discounted along with other desirable commercial paper. In giving this short time credit the farmer is called upon to give a financial statement of his business, and in this way indiscriminate loans which would tend to reduce the value of the notes are eliminated. The popularity of this type of agricultural credit is rapidly increasing, having passed the three billion dollar mark in the fall of 1918.

FARMERS' FUND. The Patriotic Farmers' Fund which was organized in New York State two years ago by public-spirited men to make small loans to farmers who are not in a position to obtain ready bank accommodations on their own credit, has been reorganized and incorporated under the State banking laws as the "Farmers' Fund, Inc." The original purpose was to give aid to production during the war, but the results were such as to encourage the managers to believe that a permanent organization in that field was wanted. The success of the plan was largely due to the voluntary coöperation of 1500 local loan committeemen throughout the State, who passed upon the applications, and the agent banks which handled the funds and looked after collections. It is estimated that the food production of the State was increased \$5,000,000 as a result of the loans.

The permanent company is now organized with a capital of \$400,000 and a surplus of \$100,000 under the investment company law of the State. It will be governed by a board of directors composed of 30 well-known bankers. Loans will be made only to directly aid production, not for building purposes or to buy land. Total loans since May 28, 1919, the date of incorporation of the new company, including those taken over from the Patriotic Farmers' Fund were \$663,758.50 of which \$235,050.51 have been repaid, leaving \$428,707.99 outstanding. The loans were divided as to general character as follows: crop loans 50 per cent, live-stock loans 35 per cent,

machinery loans 15 per cent. Loans exceeding \$500 in amount, which were not numerous, were secured by chattel mortgages.

AGRICULTURAL EDUCATION. IN THE COLLEGES. The year 1919 has been a very trying one on the agricultural colleges. The disbanding of the Students' Army Training Corps begun in 1918 was completed early in 1919. This left the colleges with disorganized classes, and a greatly reduced student body. In addition many of the faculty were doing war work in one capacity or another and were now beginning to return. However, the colleges without exception faced this condition with courage and began a reorganization of their forces. It is yet a matter of experiment what will be done with the four-quarter year begun under the Students' Army Training Corps, but safe to say it is likely to be adopted with some modifications.

For various reasons the Students' Army Training Corps plan of training proved a failure from the college standpoint although some lessons could be had from that experience. The usual summer courses were given and at the opening of the new college year in the fall of 1919 the colleges were facing the task of taking care of the large number of students that were flocking to their doors. The colleges were forced to increase their teaching staffs, in some cases as much as 30 per cent, in order that this large student body could be taken care of. Much attention is now being given to the improvement of instruction in the colleges and the courses of study are being carefully scrutinized, criticized, and revised with the view of making the instruction more efficient. Substantial support to the colleges has been granted by the legislatures of the states, this coming in the way of increased appropriation for instruction, increasing the faculty and substantially increasing the salaries of the instructors and adding to the funds for extension teaching and for permanent equipment.

Among the substantial evidences of progress may be noted the provision by the Minnesota legislature for new buildings of \$505,000 for the first year and \$560,000 for the second year of the biennium, the last being the first item of a \$5,600,000 10-year fund; a special appropriation of \$60,000 for an engineering laboratory, at the Oregon Agricultural College and \$15,000 for the completion of the buildings salvaged from the Students' Army Training Corps; \$75,000 for special salary increases and \$30,000 for regular increases in California; \$300,000 for a library building and \$141,000 for equipment and improvement of the plant at the Iowa Agricultural College; a special grant in New Jersey of \$75,000 for a new horticultural building; plans for a new administration building at the University of Tennessee, costing \$400,000 and an agricultural building to cost \$275,000; and legislative provision in Texas for an agricultural building to cost \$250,000 and for a building for the extension service to cost \$100,000.

VOCATIONAL AGRICULTURAL EDUCATION. The 48 states have now accepted the provision of the Smith-Hughes Act and have set up a state organization for the administration of the act. The legislatures have matched the appropriation by the Federal government and in several instances have appropriated money in excess of the Federal funds. The State directors and supervisors now number 182. The total fund

allotted in 1919 to the States for agriculture under the Federal Vocational Act was \$782,575.56 of which approximately 75 per cent was expended. The legislatures of 43 of the 48 States met in regular session in 1919. Of these 31 passed vocational legislation of importance other than such appropriation acts as would provide increased funds. For 1919 there were organized in every State schools of vocational agriculture, the total number being 863, which is 42.3 per cent of the entire number of vocational schools of the United States. These schools report 1327 teachers giving instruction to 19,933 students. Two of the outstanding problems of vocational education at present are the adequate training of teachers and the proper supervision of their work.

TEACHER-TRAINING. In 1919, 60 institutions were giving teacher training for vocational agriculture, employing 224 teachers, enrolling 1334 students. With few exceptions the State plans provide as the qualifications of teachers of vocational agriculture graduation from a four-year college course planned for the training of teachers of vocational agriculture and at least two years of practical farm experience. This has generally been recognized as the standard for the country, but during the past two years many of the States have been compelled through a scarcity of teachers to temporarily disregard this standard. The training of teachers of vocational agriculture is in reality the preparation of persons for two vocations, (1) the vocation of agriculture, and (2) the vocation of teaching. Conditions attendant upon the war seriously interfered with the teacher-training programme. Very few teachers were prepared through the regular courses during the war. Many of the States, however, put into operation short intensive emergency courses. Through these courses men experienced in farming, trained in science, and with experience in teaching were given instruction in technical agriculture. These courses are now being rapidly discontinued. Along with the problem of training teachers in college for teaching of vocational agriculture is also the problem of training teachers while in service. Nearly every State has provided for some form of systematic training of teachers while in service, chiefly by regular visits from an itinerant teacher trainer; by intensive short courses in training at the college; by regular courses in home instruction under the supervision of the teacher-training staff; and through frequent group conferences where the problems of instruction are freely discussed.

The problems of teacher-training departments at the colleges are chiefly the content of the course of study, how this course shall be administered, the relations of the teacher-training department to the State board for vocational education, the relations of the department to the other departments of the college, and the problem of practice or apprentice teaching.

SUPERVISION. In 1919, 30 States employed full-time State supervisors; 18 States employed supervisors for part time. In some States the part-time supervisors were lent by the teacher-training institutions to the State board for vocational education. Because of the demands made by the war there were few students enrolled in the teacher-training institutions. The staff for the training of teachers had already

been engaged. Arrangements were therefore made, by which the teacher trainers assisted the State supervisors in giving instruction to those teachers who were already in service. This was fortunate since so many of the teachers were new to the work. Owing to the scarcity of trained teachers those who had been removed by war service had to be replaced by others who were not so well trained. In some of the States the programme of vocational agricultural instruction would have suffered if arrangements had not been made for giving an unusual amount of assistance to the teachers in service. It is now recognized that one of the largest problems involved in supervision is that of giving assistance to the teachers in the solution of specific problems connected with their work. In order to do this the States have found it necessary to provide supervisors who not only possess the qualifications of a teacher of agriculture, but also have had successful experience in teaching agriculture. In several States two or more supervisors have been provided in order that all of the vocational agricultural schools might receive the needed assistance.

THE VOCATIONAL SCHOOLS. Development in the field of vocational agricultural instruction in secondary schools has been in the direction of the establishment of departments of agriculture in high schools, or in the establishment of rural vocational schools. At present schools of the first type predominate. Few of these schools employ more than one teacher of agriculture and the pupils, for the most part, live at home on farms. The supervised practice work is usually in the form of home projects. There is a decided trend now toward giving instruction in agriculture to the pupils while still living on the farm rather than taking the pupils from the farms and transporting them to special schools where large numbers may be gathered together. These departments are in the nature of part time schools, the instruction being designed to supplement the employment of the pupil on the home farm. In order that the schools may really carry out this type of instruction it has been found necessary to limit the attendance upon these classes to pupils who can actually carry out some form of farm work. The work in vocational agriculture is usually accepted as a part of the high school course, thus enabling the pupil completing the vocational agriculture work to secure not only the agricultural certificate, but also the diploma granted by the school.

A few of the States have made provision through short part time and evening courses to reach another group which consists of those who have definitely dropped out of school and would not otherwise be receiving school instruction of any kind. There is an increasing number of States making special effort to reach this group. It is generally recognized that a highly important field is to be reached through these part time and evening courses. It is now generally recognized that it is impossible for these secondary schools of agriculture to cover the whole field of agricultural instruction in even a four-year course. Hence, these schools generally now emphasize the phases of agriculture dominant in the community and give less attention to other phases of agriculture which are not so important in that community.

As a result, there is a tendency to formulate the instruction in a given school on the basis of the agricultural needs of the community.

ELEMENTARY AGRICULTURAL EDUCATION. While the problem of reorganizing the secondary instruction in agriculture has perhaps been the overshadowing one for the year, the problem of elementary agriculture has not been overlooked. In many States special appropriations have been made for the rural schools, and added efforts have been made to train special teachers for the rural schools. As the rural problem centres in the farm home and the farm, the problem of rural education centres in the home agencies, and agricultural instruction must link up closely with the farm life activities of the pupils of the rural schools. Campaigns of reorganization and consolidation are being carried on in many States, and in every State close attention is being given to the problems of the rural elementary school.

FOREIGN: France. An annual appropriation of \$250,000 has been made to stimulate improved methods in agriculture following the war. It is planned to develop methods in instruction following the American plan. A general reorganization of agricultural instruction is expected to follow.

England. The great stimulus given to agriculture during the war has been carried over into the reconstruction period. Improved plans of agricultural development are being made. Large appropriations have been made for agricultural instruction. It is planned to carry out an extension plan of teaching based upon a study of the work carried on in the United States.

AN A. E. F. SCHOOL OF AGRICULTURE. The review of the year's work in agricultural education would not be complete without a brief account of this wonderful school of agriculture planned and inaugurated by the Y. M. C. A., and afterwards taken over by the Army Education Commission. This college of agriculture was organized as a part of the great educational plan for the soldiers of the A. E. F. It was established at Beaune in east central France, and enrolled 6000 students, and 2600 more at a nearby farm school at Allery. Through a system of extension work these courses in agriculture were carried to thousands of soldiers, so that there was probably not a single regiment of the A. E. F. in which some sort of educational work in agriculture was not under way—a school, an institute, a short course, a farmers' club, special lectures, or correspondence courses. This work was under the direction of President K. L. Butterfield of the Massachusetts Agricultural College, and associated with him were a large number of the ablest agricultural educators in the United States gathered from the agricultural colleges throughout the country. From the army something more than 150 men were selected for agricultural work, representing 40 different agricultural colleges of the United States. Forty different studies were offered, grouped in four general departments—animal husbandry, agronomy, horticulture, and forestry, and rural economics and sociology. In addition supporting subjects were offered in the other colleges. Instruction was carried on in much the same manner as in the United States, except where necessity has compelled a shortening of laboratory work. Nu-

merous field trips to French farms and forests were helpful in supplementing classroom work. While this school was an experiment, yet its worth was clearly demonstrated. Out of this plan has come a permanent educational policy for the army, combining military training with training for the vocations and professions of civil life. Agriculturally, the results are large, for the farmer-soldiers are stirred to a full realization of their opportunities and their obligations in the rural field.

AGRICULTURAL EXPERIMENT STATIONS. The experiment stations in the United States, as in other countries, have been quite seriously affected by the war and the increased cost of operation. Except in isolated cases there has been no material increase in funds of the American stations for investigation, and the development of other features of the agricultural colleges and the demand from the industries have taken many of their workers. Attention is being sharply called to the situation, which is regarded as serious and as requiring stimulation and more adequate support if the stations are to continue to maintain their place in the growth of agricultural institutions. The Secretary of Agriculture, in an address, has called forceful attention to the necessity for continued research and experiment to add to the sum of scientific knowledge. The importance of this as a national asset was disclosed by the war, which also brought out the fragmentary character of available information in certain lines. The secretary has declared that the nation must have a well balanced programme of research, and that to this end the most capable staffs possible should be secured and maintained.

There have been an unusual number of changes among the directors and investigators of the stations during the past year, due largely to the competition of institutions and the industries for men, and the inability of the stations to meet offers of larger salary. On the whole, however, the principal lines of work were well sustained.

Early in the year the experiment station in the Virgin Islands, established under Danish control, was formally transferred to the administration of the Department of Agriculture. The legislature of Arkansas made provision for buying land for a new substation in the southern part of the State, and also for purchasing land for a farm for the agricultural college and experiment station. A tract of land near Fresno, Cal., was set aside for a fig experiment station to be devoted primarily to experiments in fig culture. In Florida a new citrus branch station was provided for and a site selected at Lake Alfred. It contains several acres of citrus groves and young plantings. A plant has been installed in connection with the Florida station in coöperation with the U. S. Bureau of Public Roads, to determine the value of sewage on the sandy soil of the station.

A new Coastal Plain Station was authorized by the Georgia legislature, and located at Tifton, where land and funds for its use have been donated by local parties. The Indiana Station received a gift of a 400-acre farm in the northern part of the State, for the study of agricultural problems of that section, and another tract of 67 acres for soil fertility tests. The Minnesota Station entered into a contract with a county

poor farm for the use of a portion of its land as a sandy land experiment field. A forest biological station, to be known as the Roosevelt Wild Life Forest Experiment Station, was authorized by the New York State legislature and has been established with headquarters at the College of Forestry, Syracuse University. It will be devoted to studies relating to fish, birds, game, food and fur bearing animals, and forest wild life. In Washington State \$35,000 was appropriated for buildings, equipment and other expenses of a new irrigation substation at Prosser. An act of the Wyoming legislature placed under the experiment station the series of farms formerly controlled by the State Farm Board. This will make possible the development of substations in typical sections of the State to meet the varied local needs.

In the Philippines provision was made for the establishment of an experiment station in connection with the college of agriculture. A tract of nearly five hundred acres has been acquired, farm buildings erected and two laboratory buildings projected.

The corner stone was laid of a new agricultural building at the University Farm, Tennessee, which will cost approximately \$250,000. The Texas Station completed a spacious fire-proof building for research and administration, and the Utah Agricultural College and Station occupied a new well appointed live stock building, costing approximately \$90,000, which will house the departments of animal husbandry, poultry husbandry, range management, and veterinary science.

Dr. Cyril G. Hopkins, head of the agronomy department of the Illinois University and Experiment Station and well known for his work and writings on soil fertility, died at Gibraltar, October 6. He was returning from a year's work in Greece where he had been advising the Government on means for increasing agricultural production.

In an article entitled "Beginnings in Agricultural Education and Research in California," prepared in connection with the semi-centennial of the State university, Prof. E. J. Wickson reviewed in an interesting way the history and development of the agricultural experiment station, established in 1895 (in *Annual Report of the California Experiment Station for 1918*).

An account of the work of the Rothamsted Experiment Station from 1914-1919 (*Journal of the Board of Agriculture*, August, 1919), shows its activity in this period of emergency. This work divides itself into two main groups, namely, problems connected directly with the war and those connected with the development of agriculture after the war. A new laboratory for the Rothamsted Station was opened in October, which was built at a cost of £26,000 supplied by public subscription, private donations, and the development fund of the Board of Agriculture. The work of the latter board on plant diseases and economic entomology has been concentrated at the Rothamsted Station and placed under the control of the Lawes Trust.

The British Board of Agriculture and Fisheries has purchased a farm for experimental work with potatoes; and government aid has been given an organization which will conduct a test of beet-growing for sugar on a commercial scale. Economic conditions resulting from the war having made it impossible to continue on

its original basis the well known Woburn Experimental Fruit Farm, established under the patronage of the Duke of Bedford in 1894, the farm is to be continued with funds supplied by the Board of Agriculture and the Development Commissioners. A volume reporting the results of 25 years of activity has been issued. (*Science and Fruit Growing*, Duke of Bedford & Spencer Pickering, London, 1919.) A Scottish station for testing and registration of agricultural plants has been opened on a farm of about two hundred acres in the vicinity of Edinburgh.

Under a decree of the French Minister of Agriculture, a Superior Council of Agronomic Stations and Agricultural Laboratories has been established, with representatives from the Academy of Sciences, the Academy of Agriculture, and the Ministry of Agriculture. This council will serve as a governing board for these stations and laboratories, determining their policy, lines of work, requirements for support, etc. Provision has also been made in France for departmental and regional chambers of agriculture to deal with programmes for experiments of various kinds and the dissemination of results by various means.

The Agricultural and Colonization Department of the Zionist Commission in Palestine is planning for the establishment of a central experiment station and five branch stations representing typical regions. The station established several years ago at Hefi was destroyed during the war, together with the extensive library which had been assembled there. The Macdonald Institute of Agriculture and Plant Experiment Station has been opened near Johannesburg, South Africa. The government of the East African Protectorate has made provision for a scheme of exploration and development of the resources of the country, involving a series of stations located at intervals of 1000 feet in altitude from sea level to 9000 feet. Meteorological data will be taken, and studies will be made on acclimatization and the suitability of different regions for various crops. Laboratory work will be carried out in the government laboratories in Nairobi.

AGRICULTURAL EXTENSION WORK.

During 1919 the coöperative extension work in agriculture and home economics carried on in all the States by the United States Department of Agriculture and the State Agricultural Colleges under the Smith-Lever Act of May 8, 1914, and other Federal and State legislation, passed through a transitional stage. Up to the close of hostilities in the European War the national, State and county extension forces were busily engaged in aiding the farmers throughout the United States in increasing agricultural production to meet the war needs, and both country and city people in conserving the products and making most economical and effective use of available supplies. Since that time special attention has been given to the problems of agriculture and household economy growing out of the discontinuance of military operations and the adjustments necessary to meet conditions arising in the settlement of world affairs after the war. The peculiar economic conditions which have increased the cost of labor and the commodities purchased by the farmer without at the same time bringing him a satisfactory income from his farm operations, the scarcity

of farm laborers and the rapid rise in the value of agricultural land have so impressed upon the farming people the importance of attention to the economic factors of farming that they have insisted that the extension forces shall give a large share of their time to the problems in this field. The county agents and other extension workers have therefore done much to instruct the farmers in improved methods of grading, packing and marketing their products and in forming coöperative associations for buying or selling goods.

There has also been great interest in demonstrations of farm tractors and other improved machinery to make the farmer's work most efficient and profitable and to substitute mechanical power for the farm laborer.

In coöperation with the Treasury Department, a campaign has been carried on to promote thrift, and partly to encourage the purchase of War Savings Stamps and government securities.

As a result of the infirmities and physical defects discovered in country young men examined for the army and the frightful ravages of the influenza epidemic great interest has been aroused in the problems of the health of rural people. The extension forces have therefore turned their attention more largely to matters relating to the sanitation of the farm and the home, prevention of disease through protection against impure water and food and injurious insects or parasites, the proper care and feeding of children, the benefits of suitable recreation, etc. Such work is largely done in coöperation with public health services, school authorities, the Red Cross and other welfare agencies.

Special efforts were made by the extension forces to perfect and establish on a permanent basis the coöperation agencies among the farming people, in order that the extension work might rest more securely on the initiative and active participation of the people themselves.

The number and strength of the organizations supporting the work of the county agents, which are known as farm bureaus, agricultural or farm councils, were greatly increased. These organizations are made up of from several hundred to 2000 or more farmers in the county or are formed by the federation of community clubs. In some cases there are separate organizations for the women but what is sometimes called the family farm bureau comprising both men and women is growing in favor. There are now more than 1,000,000 of the more progressive and influential farming people in these organizations. They often contribute to the salary and expenses of the county agents and take an increasing part in the determination of the programme of extension work.

The annual dues for membership in the county organization vary from 50 cents to \$10 but in some States there are no dues. In a number of States they are recognized in law as the official bodies in whose interest or through which the public funds contributed by the county for extension work are to be expended. As voluntary organizations they often engage in matters which are outside of the functions of the county agents supported by public funds. Sometimes they engage in coöperative buying or selling but it is more common for them to form separate organizations for these purposes. They are also increasingly interested in public questions relating to agricultural interests and the

promotion of improved conditions of country life. State federations of these county organizations have been formed in over 20 States. In Illinois and Iowa the State federations have liberally paid executive officers and have carried on active campaigns for increasing the membership of the farm bureaus and enlarging the scope of their work. The delegates representing the State federation often meet at the State agricultural colleges and confer with the extension director and other college officers regarding the general interests of the extension work in the State. In November, 1919, a national organization known as the American Farm Bureau Federation was formed at Chicago, with J. R. Howard of Clemons, Iowa, as president. The membership of this organization will consist of State farm bureau federations or similar agricultural associations. Its governing body is a board of directors representing the several State federations who will hold annual and special meetings. An executive committee of 12 members representing different regions of the United States "shall have charge of the administrative affairs of the organization" and shall elect its salaried secretary. The Secretary of Agriculture and the Director of the States Relations Service have the privilege of attending all meetings of the executive committee and participating in its deliberations but without the right to vote. This organization will be supported by annual dues from each state association amounting to 10 per cent of the county farm membership dues or in States not having such dues from \$250 to \$1000. The objects of this organization as stated in its constitution are "to correlate and strengthen the State farm bureaus and similar State organizations" and "to promote, protect and represent the business, economic, social and educational interests of the farmers of the nation and to develop agriculture."

Owing to the withdrawal of war emergency funds the number of persons employed in extension work decreased from 7500 on June 30, 1918, to about 5100 in December, 1919. During the same period the number of counties having the services of agricultural agents decreased from 2435 to about 2000, and the counties having home demonstration agents from 1715 to about 815; out of nearly 200 cities which had such agents during the war only 9 have retained their services. The number of paid leaders of boys' and girls' clubs decreased from over 1000 to about 450.

In 1918 in the 15 Southern States 317,500 adult farmers conducted demonstrations under the supervision of the county agents on about 3,207,800 acres, among the principal crops being corn, 774,750 acres, with an average yield of 35 bushels per acre or double the average of the whole territory; and wheat, 317,950 acres, yielding 19.7 bushels per acre. Pruning and spraying demonstrations were made in about 20,000 orchards and advice given regarding tree management involving about 45,700 orchards.

Among the results of the activities of the county agents relating to live stock were the bringing in of 4395 horses and mules, 12,647 pure bred and 15,000 grade dairy cattle, 17,800 pure bred and 40,000 grade beef cattle, 42,850 breeding hogs, 10,775 pure bred and 69,850 grade sheep and goats. With the coöperation of extension specialists the county agents conducted

feeding demonstrations with 3821 horses and mules, 19,200 dairy cattle, 28,317 beef cattle, 71,901 hogs, and 8026 sheep and goats. Poultry demonstrations were conducted on 4623 farms. They aided the farmers in protecting over 4,775,000 head of live stock against diseases, and in the building of 2219 dipping vats and 3800 silos. Over 63,000 demonstrations on the care of manures were conducted and 224,000 farmers were advised regarding the use of fertilizers. Over 2000 groups of farmers were organized to purchase fertilizers coöperatively and in general the farmers were aided in solving their marketing problems. Campaigns for the promotion of home gardens in rural and urban communities resulted in the planting of over 3,000,000 gardens in the South.

Work among the negro population of the Southern States was continued along the same lines as heretofore, largely with the coöperation of the negro agricultural colleges, and the number of negro agents was somewhat increased. In counties without negro agents the white agents do considerable work with negro farmers. Marked progress has been made in encouraging negro farmers to grow home gardens, and keep cows and pigs to provide home supplies of food.

In the Northern and Western States the county agents made over 500,000 farm visits, coöperated with 8575 community committees, and conducted 77,668 demonstrations incident to crop and live stock production. They assisted 348,000 farmers in obtaining seed, resulting in the planting of 5,392,000 additional acres on which over 70,000,000 bushels of crops were produced. About 550,000 farmers tested their seed corn and nearly 100,000 farmers tested seed oats for smut. More than 225,000 families in town and country were assisted in growing home gardens. Assistance in sanitation and demonstration of disease control continued a prominent phase of the work with live stock, in coöperation as far as possible with veterinarians and State and federal control agencies. Among these demonstrations were the testing of 55,962 animals for tuberculosis and the vaccination of 380,264 animals for blackleg and 523,189 hogs for cholera.

About 18,000 farmers kept records of their business on forms furnished by the farm management demonstrators. The value of the coöperative business of farmers' exchanges and coöperative associations organized with the aid of county agents amounted to nearly \$42,000,000, with a saving of over \$4,500,000. Over 19,000 farmers were assisted in securing credit for the purchase of seeds, machinery, fertilizers and other supplies and 151,532 laborers were placed on farms.

The work of the county women agents, commonly called home demonstration agents, and the supervisory officers and extension specialists in 1918 was greatly increased. In the Southern States 23,000 clubs of women and girls, with an enrollment of over 3,000,000, worked with the agents in rural and urban communities, including clubs for negro women and girls with a membership of 350,000. In connection with this work there were established 855 community canneries, 639 community demonstration kitchens; 131 drying centres; 137 rest rooms in cities and towns for farm women; and 20 free curb markets. The programme included gardening, canning, drying, and brining of fruits and vegetables; butter and cheese making; poultry production and market-

ing; purchase and home manufacture of labor-saving equipment; better utilization and conservation of food and clothing; and coöperative marketing. Considerable attention was also given to matters relating to health, recreation and general improvement of rural conditions.

In the Northern and Western States much the same kinds of work were done by the home demonstration agents. Over 13,000 training classes for local leaders in food production and preservation were organized and through demonstrations and home visits over 2,250,000 persons were reached and over 2,700,000 persons attended exhibits prepared by the agents.

Recently special emphasis has been laid on child feeding and hot school lunches. In several States the agents coöperated with the Dairy Division of the Bureau of Animal Industry in campaigns to stimulate the production and consumption of milk and milk products, with special reference to the use of milk in the diet of children. Rapid progress was made in introducing homemade and commercial labor saving devices and improving kitchen arrangement and equipment in farm homes.

During the influenza epidemic home demonstration agents in both North and South did very important work in organizing soup kitchens, emergency hospitals and volunteer nursing services and acted as hospital cooks and dietitians.

In the boys' and girls' clubs about 2,000,000 members were enrolled of whom about 150,000 were negroes.

As heretofore the country boys and girls were active in food production and conservation and other useful work on the farms and in the homes and thousands of city boys and girls had war gardens and helped in food conservation. In the Northern and Western States 41,823 members of canning clubs canned 1,901,789 quarts of vegetables, fruits, meats and soups; 16,128 members of poultry clubs hatched 331,072 chickens and obtained 133,565 dozen eggs; 12,974 members of pig clubs reported 4,423,081 pounds of pork from 25,602 animals; 11,307 members of potato clubs raised 646,503 bushels of potatoes; 8706 members of bread clubs baked 193,207 loaves; 18,951 members of garment-making clubs reported 198,822 garments made; 115,725 members of home-garden clubs grew and reported on gardens; 251,032 members of clubs of different kinds reported the production of \$6,019,092 worth of products at a cost of \$2,447,313, including wages paid to the club members.

In the Southern States the girls worked with the women in the lines stated above, but about 400,000 boys had separate clubs. The total production of these clubs, including those for negro boys, was valued at \$12,000,000. The average yield of corn grown by club members was 42.8 bushels per acre as compared with the general average of 19.4 bushels in the Southern States.

As heretofore, in all parts of the country, numerous exhibits of club products were made at local and State meetings and fairs and prizes were awarded, which often enabled the recipients to attend short courses at the colleges, make observation trips, or prolong their school education. Coöperation with school officers and teachers continued on a large scale.

The work of extension specialists in the various branches of agriculture and home economics with headquarters at the agricultural colleges or the Department of Agriculture was materially

increased. These officers supplemented the work of the county agents, furnished them with advice and assistance, gave instruction in numerous movable schools and meetings, prepared publications, and answered inquiries. Among the things to which these specialists gave attention were the stimulation of pork, beef and egg production, introduction of pure bred animals, promotion of sheep raising, formation of cow-testing and bull associations, hog cholera prevention, making and use of cottage cheese, eradication of the barberry to prevent rust on wheat, pruning and spraying of orchards, grading, packing and marketing of fruits and vegetables, control of rodents and insects, improvement of crop rotation, demonstrations of tractors, farm management demonstrations, formation of marketing routes and organizations, instruction and demonstrations in food and nutrition, clothing, home hygiene and sanitation, and home decoration.

Extension work in Alaska, Hawaii, Porto Rico, and Guam was carried on through the Federal experiment stations. A number of farmers' meetings were held in the Matanuska and Tanana valleys in Alaska. Demonstrations in Hawaii included curing of pork, caponizing, production of concentrated feeds to replace grain brought from California, etc. In Porto Rico 1741 meetings were held and 500 field demonstrations were conducted. An active campaign to eradicate the cattle-tick was begun. In Guam the work included farm demonstrations, boys' and girls' clubs and school gardens.

Nearly 7000 farmers' institutes were held during 1919 in 31 States by the agricultural colleges or State Departments of Agriculture, with an attendance of 1,900,000.

The general interests of the coöperative extension work throughout the country continued to be promoted by two extension offices in the States Relations Service of the Department of Agriculture. The work in each State was administered by an extension director, with headquarters at the agricultural college, who was a joint representative of the Department and the College. Under the director were State and district leaders of county agricultural agents, home demonstration agents and boys' and girls' club work.

For the fiscal year beginning July 1, 1919, the total fund available for extension work in the States was about \$14,250,000. Of this about \$985,000 was derived from direct appropriations to the States Relations Service, \$296,000 to other bureaus of the Department of Agriculture, \$3,080,000 from Smith-Lever Act, and \$1,500,000 from the supplementary federal fund, making the total federal contribution \$5,861,000. This was met by approximately \$8,400,000 from sources within the States, including about \$4,000,000 to offset the regular and supplementary Smith-Lever funds, \$965,000 additional State and college funds, \$3,000,000 from counties and \$500,000 from farmers' bureaus and miscellaneous sources. About \$7,423,000 was used for the demonstrations and other activities of the county agricultural agents. Much of their work bore on problems of the farm home, but \$2,578,000 was allotted to distinctive work in home economics. About \$840,000 was used for work among boys and girls, and about \$2,180,000 was devoted to the tasks of the specialists.

AGRICULTURAL LEGISLATION. UNITED STATES. Although very little distinct-

ively agricultural legislation was completed by Congress during 1919, farmers and their organizations were probably more influential in legislative matters than ever before. They were particularly interested in the repeal of the so-called Daylight Saving Law of 1918, experience having shown that it was seriously handicapping many farm operations. Efforts to secure this repeal through a clause in the belated Agricultural Appropriation Bill led to a presidential veto of this measure July 10. The appropriation act eventually became law separately on July 24 (for discussion, see AGRICULTURE, *U. S. Department of*), and the daylight saving legislation on August 20th, Congress overriding a second veto.

A proposed National Soldiers' Settlement Bill was generally opposed by farmers on the ground that the contemplated acquisition and improvement by the government of vast tracts of land for subdivision into farms for ex-service men might seriously injure existing farm enterprises. At the close of the year this measure was pending in the House following a favorable report from the Committee on Public Lands. Sixteen States, however, adopted State Soldier Settlement Acts, and South Dakota and Utah each appropriated \$1,000,000 to institute reclamation work.

Amendments to the Federal Food Control Act of 1917 were adopted extending its scope to containers in which foods, feeds, and fertilizers are sold. Penalties were provided for individual profiteering as noted elsewhere (see FOOD AND NUTRITION), but farmers and their organizations were specifically exempted from these provisions as regards farm products raised by them. In the course of the year, many of the States passed legislation facilitating the organization of co-operative agricultural associations, as well as regulating marketing practices, grading of produce, and similar matters.

There was a noteworthy tendency for the States to centralize their administrative and regulatory activities in departments of agriculture. Many inspection laws were broadened, notably to include seeds, insecticides and fungicides, and dairy products. Ten States strengthened their laws against bovine tuberculosis, and four required the extermination of the common barberry as a means of combating black rust of cereals. More stringent dog laws in the interest of sheep raising were passed by five States, and two more took other action to foster the industry.

FOREIGN LEGISLATION. Most of the comprehensive war measures remained in force throughout the year, though there was considerable relaxation of administrative regulations. A Soldier Settlement Act was passed in Canada appropriating \$25,000,000 for loans to discharged soldiers and sailors. Funds may be advanced to purchase and equip farms in any province, or to improve tracts on the public domain, and training is provided for those lacking experience. A Seed Grain Act permits loans to farmers suffering loss of crops. Under a Land Settlement (Facilities) Act passed in Great Britain the power of county councils to acquire land compulsorily was materially broadened, in the interests of aiding ex-service men and women engaged in agricultural work during the war to obtain farms. France provided for the acquisition by departments and communes of tracts for subdivision into small holdings, particularly for the benefit of families with little capital. See also **FORESTRY AND RECLAMATION.**

AGRICULTURAL POLICY. See AGRICULTURE and SOILS.

AGRICULTURE. The cessation of hostilities in Europe brought little immediate improvement in its agriculture, which had been seriously crippled for four years; and the general unrest made conditions in some respects worse. It was obvious early in the year that Europe could not produce sufficient food for herself, and that most of the countries would be hard pressed until after another harvest at least. Food became the key to the whole situation and to the establishment of peace and order. It was estimated that in 1919 Europe would not produce more than 70 per cent of its food, and that it would need to import at least 20,000,000 tons of bread grains alone, of which some 11,000,000 tons must come from the United States.

PRODUCTION IN 1919. In planning the "liberty wheat campaigns" in the United States, the Department of Agriculture suggested a maximum fall sown average of 47,206,000 acres, an increase of 12 per cent over 1918. The response, however, was 49,905,000 acres of fall wheat, the largest in the nation's history, nearly 13,000,000 more than in 1918, and 15,809,000 more than the previous 5-year average. In addition, the spring wheat area was 23,338,000 acres, making the combined acreage of fall and spring wheat 73,243,000 acres, or 12,774,000 greater than any previous record.

Although the season was not favorable for the spring-sown crop, it is estimated that the total production of wheat amounted to 940,987,000 bushels, or 19,549,000 bushels more than in 1918 and the second largest wheat crop for the country.

The total area sown to the leading cereals in the United States for the crop year 1919 was greater by 33,000,000 acres than the pre-war average for 1910-14, and it is estimated produced 635,000,000 bushels more than that average. At the same time, the number of cattle, swine, horses, and mules was increased by a total of nearly 29,000,000 head.

The corn crop was one of the largest ever grown, estimated at more than 2,917,450,000 bushels, and nearly 169,000,000 bushels above the 5-year average. Oats, rye, and barley were each considerably lower than in 1918, and below the 5-year average except in the case of rye, which came into much prominence during the war as a food crop. The production of buckwheat was considerably larger than in recent years, and the rice crop was the largest ever grown in the United States, amounting to over 41,000,000 bushels and occupying a little more than a million acres. Kafir reached the large figure of 126,058,000 bushels, a great increase over the past three years.

The white potato crop fell off 54,000,000 bushels as compared with 1918, but the sweet potato crop was the largest ever grown, nearly 35,000,000 bushels above the 5-year average. The hay crop was approximately 12,000,000 tons above the average; while tobacco, next to the crop of 1918, was the largest of record, estimated at 1,389,458,000 pounds.

The total area planted in the principal crops in the United States is placed at 347,731,000 acres, compared with 345,959,000 acres in 1918. On the basis of recent prices, the total value of all crops produced in the United States in 1919 is estimated by the Department of Agriculture

PRODUCTION BY COUNTRIES IN 1918 AND 1919 OF WHEAT, RYE, OATS, BARLEY, AND MAIZE IN BUSHELS

	Wheat			Rye			Oats			Barley			Maize (Corn)		
	1919	1918	1919	1918	1919	1918	1919	1918	1919	1918	1919	1918	1919	1918	1919
United States	940,987,000	921,488,000	88,478,000	91,041,000	1,248,810,000	1,538,134,000	256,325,000	2,917,450,000	2,502,665,000	14,225,000	170,660,000	2,502,665,000	14,225,000	170,660,000	2,502,665,000
Canada	187,668,000	189,301,000	8,241,000	10,876,000	484,859,000	880,274,000	77,290,000	11,284,000	14,225,000	170,660,000	2,502,665,000	14,225,000	170,660,000	2,502,665,000	14,225,000
Argentina	184,268,000	219,481,000				75,788,000									
Chile		28,292,000													
Uruguay		12,860,000													
Austria		28,460,000													
Hungary		170,760,000													
Belgium	8,587,000		18,692,000		26,928,000		8,473,000		157,000,000						
Bulgaria															
Denmark		6,320,000		12,716,000		41,574,000		20,612,000							
France	172,440,000	233,781,000	27,856,000	28,958,000	168,818,000	176,220,000	22,685,000		8,750,000						
Germany	88,000,000	90,830,000													
Greece															
Italy	164,287,000	176,368,000	4,574,000	4,724,000	34,725,000	41,386,000	7,995,000	78,800,000	76,653,000						
Netherlands	5,830,000	4,828,000	14,068,000	10,207,000	20,514,000	20,794,000	2,581,000								
Norway		1,053,000		1,013,000		16,583,000		5,898,000							
Portugal															
Rumania	49,175,000	78,658,000	8,555,000	789,000	14,790,000	5,012,000	11,510,000	100,468,000	25,090,000						
Russia (Europe)		618,106,000													
Russia (Asia)		103,000,000													
Serbia		185,709,000													
Spain	132,195,000	135,709,000	27,060,000	80,445,000	29,175,000	30,474,000	85,485,000	24,573,000	24,141,000						
Sweden		6,616,000		25,648,000		64,684,000		12,947,000							
Switzerland	3,414,000	7,095,000	1,576,000	1,850,000	2,770,000	5,188,000	600,000	287,000	358,000						
Turkey (Europe)															
Turkey (Asia)															
United Kingdom		93,099,000				809,564,000		65,029,000							
British India	271,357,000	379,829,000													
Japan	28,889,000	31,127,000			9,924,000	6,828,000	87,887,000	76,052,000							
Algeria	24,764,000	49,199,000	6,400		11,220,000	26,564,000	82,326,000	58,422,000	236,000						
Egypt		82,555,000						9,871,000							
Tunis		8,451,000			3,445,000	4,272,000	5,866,000	9,186,000							
Australia		114,866,000				9,850,000									
New Zealand		6,761,000				4,943,000		888,000						425,000	
Union of South Africa	7,428,000	8,833,000			6,475,000	8,464,000	1,120,000	1,498,000	29,708,000						

at \$15,873,000,000. This compares with \$14,220,000,000 for 1918, and \$5,827,000,000 for the pre-war average, 1910-14.

The world crops as estimated by the International Institute of Agriculture were large, especially those of corn, rye, barley, rice, and potatoes. The production of wheat, oats, and flaxseed showed a decrease from the average for the five years ended 1917. These estimates include, of course, the crops of the United States. The British Board of Agriculture showed a slight increase in the area of cultivated land in 1919, as compared with the preceding year, but a decided decrease in the area devoted to cereals, amounting in the case of wheat to about 13 per cent in England and Wales. There was a decrease in the area of potatoes of nearly 25 per cent. As a consequence, the cereal harvest in England was below the average of recent years, and the potato crop while good was far short of that of 1918. There were corresponding decreases in live stock, the most disquieting feature being in respect to the prospect for milk and the falling off of young stock and sheep. While Europe may recover more rapidly agriculturally than otherwise, it will evidently continue to experience a considerable shortage of food supplies for the coming year, and all the central and western European nations will be compelled to import large quantities of cereals and meat products. The quantities that can be imported will be limited in part by the condition of credit and the exchange.

Australia, and especially New South Wales, suffered the most disastrous drought since it has been settled. Stock and crops have been extensively destroyed, and many settlers are reported to have been ruined. The severe drought in India continued to prevail. See also DAIRYING, LIVE STOCK, and the individual crops.

FARMING CONDITIONS IN EUROPE. Despite the unsettled conditions which followed the armistice, and the inadequate crops of the past season, there are indications that farming is being resumed on a considerably more extensive scale in the northern countries involved in the war. So far as its production of bread grains is concerned Bulgaria is rapidly returning to a pre-war basis, and in Southern Hungary about 90 per cent of the normal wheat acreage was sown, but Rumania is still far from complete recovery although more than self-supporting. It has been estimated that Hungary, Bulgaria, and Rumania together will probably be able to export over a million and a half tons of bread grains in 1920, as compared with nearly 4,000,000 tons in average pre-war years.

Peasants were returning to the land from which they were driven in Eastern Poland and Western Russia, but food conditions were very bad. The entire acreage in Germany is under cultivation but production suffers from a lack of fertilizers. The latter is true of other sections of northern Europe. See also FERTILIZERS.

In England and many other parts of Europe estates and large tracts of land are being cut up or limited in size. In Poland, Rumania, Croatia, and Slavonia, the governments are limiting the size of the estates to from 80 to 160 acres, the land in excess of these limits being distributed among the peasants.

AGRICULTURAL EXPORTS. The exports of food stuffs from the United States rose enormously during and following the war. The average ex-

ports of important cereals increased from 162,000,000 bushels in the five years preceding the war to 517,000,000 in 1915, and aggregated 448,000,000 bushels in 1919. Dairy products, of which an average of 25,000,000 pounds were exported during the 5-year pre-war period, increased in volume to 102,400,000 pounds in 1915, 217,500,000 in 1916, 352,000,000 in 1917, 592,000,000 in 1918, and 781,000,000 in 1919; while the exports of meat and meat products were 1,291,000,000 pounds for the 5-year average before the war, 1,500,000,000 in 1915, 1,800,000,000 in 1916, 2,300,000,000 in 1918, and 3,300,000,000 in 1919.

There is already a tendency for the exports of certain products to decline, and with a good season in Europe in 1920 there may be a return toward the pre-war normal in demand. See also DAIRYING, and LIVE STOCK.

PROGRAMME FOR 1920. Early in 1919 the U. S. Department of Agriculture called attention to the probable effect on the food situation of the signing of the armistice, the opening up of the channels of trade, and the resumption of agriculture in Europe. These changes it was to be expected might have a material effect upon the cereal and other requirements. On the basis of reports on foreign conditions and probable needs, the Department recommended a reduction in the wheat area of about 15 per cent. This would mean the planting of about 42,000,000 acres of fall-sown wheat and 20,000,000 acres of spring wheat, which would furnish an average production of 830,000,000 bushels, of which 200,000,000 would be available for export. The consumption of rye in the United States was stimulated by the war to about 50,000,000 bushels, which if maintained with the export of 25,000,000 bushels would call for an acreage of about six million acres, considerably less than that grown in the past two years. In view of all the circumstances, the Department recommended that safe farming should be followed, returning to a balanced agriculture and to the kind of farming best suited to local and individual conditions.

The continuance of energetic measures to increase the production of home-grown food was urged by the new Minister of Agriculture in Great Britain. It was held desirable that incapable or negligent farmers should be crowded out or otherwise eliminated.

EXPANDING PRODUCTION. Expansion of agriculture in the United States is limited by the supply of labor and capital rather than by the scarcity of undeveloped land. While in general the best land is in cultivation, much remains which will doubtless be tilled when the economic stage is reached to justify it. Many people have demanded rapid expansion and increased production as a remedy for high prices, while others deplore the great waste of unused land. Since the government land suited to farming is now largely gone, expansion in area will depend largely on efforts applied to private land, but as this would involve utilizing land which is inferior or require heavy expenditure to make it available, the Department of Agriculture has advised against stimulating a large increase in the area of farm land at the present time. Many efforts in this direction have resulted disastrously to settlers. The Department has combated the fallacy that an unlimited expansion of farming or an unlimited number of farmers is desirable, beyond the needs or the profitability of production.

The Board of Agriculture in England has issued a report showing some of the results achieved by the County Agricultural Executive Committees in expanding the area and improving the use of agricultural land. Neglected or badly farmed land has been taken over by these committees under the Defense of the Realm Act in practically every county in England and Wales, numbering over one thousand cases and totaling 64,000 acres. Some of these areas had been so far neglected that they required reclamation or restoration by drainage, clearing the brush, fencing, etc., and in this work German prisoners were employed to a considerable extent, as well as power machinery. Some of the results obtained were quite remarkable from a financial and emergency standpoint, and supplied striking object lessons. Over half the area taken possession of has been farmed by the committees, and it is expected that some of it will be acquired for land settlement.

Referring to the notion that American agriculture is deteriorating, the Department of Agriculture recently showed that this is not true in any significant sense, although production of some of the staples has not kept pace with population. The advance of agriculture has revealed itself in a greater diversity of products, the introduction of new crops, the increase in minor crops, and in supplying fresh products throughout the year. Even in the production of staples there has been a very marked upward trend in yield per acre. From 1890 to 1918 the acre-yield of wheat increased 25 per cent, or nearly 1 per cent per year on an average; that of corn 10 per cent, of oats 24 per cent, and of potatoes nearly 33½ per cent; while cotton showed an increase of 3½ per cent despite the ravages of the boll weevil. All other field crops likewise improved in yield, the average being 16 per cent per acre. The tendency is general throughout the Union, and is noticeable in the older sections like New York and New England. It is not due to a shifting of production.

This is a significant fact, and shows the error of the oft repeated statement that yields are declining despite the efforts of experimentation and education. A similar increase in acre yield is true in most other civilized countries. The yield is lowest for countries which have been expanding most rapidly and where extensive systems of farming prevail under cheap land and dear labor.

But despite this increase in acre yield, it is estimated that only about 15 per cent of the land in cultivation in the United States is yielding reasonably full returns. One of the objects to be attained is to promote increased yields along economic lines by the application of scientific knowledge and improved practices, and thus to bring the remaining 85 per cent up to the point of fair yield. The country is a long way from the limit of farm production, and at the proper time expansion can be effected by cultivating the tillable land which at present is unused, estimated to be over 60 per cent of the total area.

Recent statistics show that the total production of the average farm is greater in the United States than in any other country in the world. Taking both acreage and yield into account, the average American farmer produces 2.5 times as much as the average Belgian farmer, 2.3 times as much as the English, 3.2 as much as the French, 2.5 as much as the German, and over six times as much as the average Italian farmer.

The yearly value per acre of ten leading crops combined has been computed by the U. S. Bureau of Crop Estimates for each year since 1866. (*Monthly Crop Reporter*, June, 1919.) This value was the lowest (in recent years) in the period from 1893-99, \$8 to \$10, when it increased quite steadily to \$16 in 1909, declined slightly in the two following years, reached \$17.18 in 1915, \$22.58 in 1916, \$33.27 in 1917, and \$33.44 in 1918. This reflects the fluctuation in price and the large increase in value during the war.

AGRICULTURAL POLICY. The provision for a more definite governmental policy toward agriculture, in order to give greater consideration and security to the industry, has been the subject of considerable discussion during reconstruction. It is argued that this is of importance not only to farming and those engaged in it, but to the country at large. The broad relations of the industry and the necessity of fostering and developing it, supported by a prosperous rural population living under conditions which are attractive and satisfying, are seen as never before.

In the United States the president of the Association of American Agricultural Colleges and Experiment Stations, Dean E. Davenport, of Illinois, emphasized the great need at this time for the establishment of an agricultural policy, national in scope, universal in its interests, and comprehensive in its procedure; and recommended the provision of a permanent body to conduct broad and judicial studies of agricultural conditions and outline measures as the basis for such a policy.

President Wilson in his message to Congress referred to the vital service of farmers during the war, and declared "the importance of doing everything possible to promote production along economical lines, to improve marketing, and to make rural life more attractive and healthful," concluding with the suggestion of a comprehensive survey of rural conditions.

The Secretary of Agriculture has also pointed out the need of such a survey of rural life, its problems and relationships, as a result of which "the principles and purposes governing agricultural life and agencies should be set forth for the education of the American public, particularly the urban part of it." The provision of a comprehensive flexible programme in relation to agriculture would call for a conference of farmers, agricultural leaders and business men, and the Secretary indicated that the President had under consideration the calling of such a conference.

The general unrest in this country and the widespread protest against the high cost of food products have shown the lack of understanding of the farming business, and especially of the relatively small return received in the past for labor and investment in it, as compared with other industries. The farmers have begun to make themselves felt as never before, and are increasing and strengthening their organizations to protect their interests. It seems clear that there will not be a return to former conditions, and that larger public recognition will be demanded for this industry and its people.

In Great Britain the importance of food production was forced home by the war and by the decline in exchange since its close. Agriculture was stimulated by Governmental action as a war measure, but since the armistice public interest in maintaining and developing it has languished.

and doubt as to the attitude of the government has created great uncertainty on the part of farmers and land owners. The cultivated area has already begun to decline, and although about 1,750,000 acres were added to this area during the war the country is now some 3,000,000 acres behind the standard of 1870.

The seriousness of the situation is further shown by the unprecedented sale of land, which it is predicted will result in more than a million acres changing hands this year. Many large estates are being broken up, and the papers are filled with advertisements of land and country places for sale. In a country where land has been scarce and closely held, the condition is attracting much attention and is being deplored as an increasingly disturbing factor. These sales have created a sense of insecurity in the minds of tenants, which contributes to the concern for local food production.

Willingness to dispose of land is accounted for in part by the social upheaval, taxation, high rates of interest, and uncertainty as to future agricultural policy. Land owners encountered many difficulties during the war and were heavily taxed. Everybody else connected with land had a chance of improving his condition, but land owners were not permitted to raise rents and were subject to action if their lands were not effectively farmed. Tenants made money and feeling the strength of their position are exacting better terms, agitating for greater security of tenure and other conditions. Laborers are scarce and are also demanding greater consideration in the way of wages, hours, housing conditions, etc.

While government guarantees and the compulsory cultivation of the land have been continued, they are only temporary, and consequently the demand for a permanent agricultural policy has become insistent.

In response to this demand, Premier Lloyd George in a notable speech to a gathering of land-owners, farmers, and representatives of labor on October 21st, outlined the plans of his government for a policy toward agriculture. This speech is the more noteworthy as being the first address on agricultural matters by a head of the government to a representative agricultural audience within the memory of those who heard it.

The Premier declared the vital interest of the government in a progressive agriculture, which should produce all the food the land is capable of producing, thus insuring safety not only from future submarines but from economic disaster. The policy he outlined was the guaranteeing of minimum prices, especially for wheat and oats, extending over a sufficient period of years to protect the producer against loss due to violent fluctuations in prices of foreign cereals, and to take into account the increased cost of production. This matter of the guarantee is now before a royal commission, which will advise as to its amount and duration. He also strongly advocated provisions which will give greater security to both landlord and tenant in the matter of tenure and rents, coupled with the condition that good farming be required. He urged a generous minimum wage for farm labor, and on the other hand cautioned labor against taking advantage of the situation to drive a hard bargain. He advocated the provision of long and short term credit for landlords and farmers by the banks, and more adequate transportation facilities throughout the country.

The plan outlined by the Premier has not been crystallized into law and is undergoing discussion, as was to be expected. Considerable objection appears to have developed to the fixity of tenure feature, which is thought to unduly protect the farmer and bad farming and to encumber the sale of land.

FARM LANDS AND SETTLEMENT. Interest in agricultural land and in land settlement was greatly stimulated by the high prices of food products and the return of ex-service men who wished to obtain farms. It was a natural outgrowth of the larger appreciation of the importance of land and of local production.

An attempt has been made by the National Institute of Agriculture to estimate the world's productive land. Data collected from 36 countries having a total land area of 15,071,209,000 acres, approximately half that of the entire world, showed that 4,591,691,000 acres, or 30.5 per cent, are productive, and that 1,313,832,000 acres, or only 8.7 per cent, are cultivated. The latter includes that in fallow and in grass. The productive land includes besides that cultivated, natural meadows and pastures, forests, woodlots, and land devoted to cultivated trees and shrubs. The proportion of the total land area in cultivation is therefore comparatively small.

In the United States the value or price of farm lands has increased steadily, the average value of medium grade plow land being about \$74.31 per acre on March 1, 1919, as compared with \$68.38 a year previous, \$62.17 in 1917, and \$58.39 in 1916. The percentage increase during the past year was largest in the South Atlantic States and in Kentucky and Arkansas. Material increases were reported in Nebraska and South Dakota. Land values were highest in Iowa, the average being \$169 an acre, followed by Illinois with \$144. What was said to be a record price for a quarter section of farm land in Central Illinois was reported during the year, the price averaging \$687.50 an acre.

There has been much speculation in farm lands, and large profits have been secured without adding anything substantial to the value. High prices have induced farmers to sell, only to find that they must pay higher prices to secure equally desirable land. The Department of Agriculture has warned farmers against paying fictitious prices, which on a return to normal conditions may yield such small returns on the investment as to embarrass the purchaser if he has bought largely on credit.

A Federal measure for enabling discharged soldiers and sailors to acquire farms under favorable conditions, involving quite extensive reclamation schemes, was advocated in the United States and found considerable support, but failed of favorable action in Congress. Many of the States gave attention to setting forth the opportunity for soldiers to settle on farms, and there was considerable organized attempt at the camps to interest soldiers in agricultural matters.

In Canada an act was passed under which discharged soldiers and sailors may acquire 160 acres of land, and a maximum loan of \$2500 at 5 per cent to construct buildings and purchase stock and equipment.

The object of the government land settlement policy in Great Britain is not only to satisfy the demands from ex-service men, but also to secure an increase in rural population and greater home production of food. The Board of Agriculture

has had the power to acquire land under certain conditions, but relatively slow progress has been made on account of unavoidable delays. In September it was reported that there had been over 25,000 applications for land, aggregating nearly one-half million acres, largely from ex-service men. The plans had waited to considerable extent on the provision of a capital sum for acquiring land, and in October a land settlement act was passed which provided £20,000,000. It very considerably strengthened the powers of the County Councils to acquire land by purchase or rental, permitted them to purchase on the basis of a perpetual annuity, and shorten the time and process of obtaining possession. The sale of holdings is greatly facilitated by reducing the first payment and permitting installments to extend over 60 years. For the next two years preference is to be given in sale or rental of small holdings to ex-service men and women (the latter in agricultural work). Loans for the purchase of live stock, fruit trees, seeds, fertilizers, and implements are authorized. These functions of the councils are subject to approval by the Board of Agriculture.

The assistance given to French farmers in the recently occupied areas has been extended to those wishing to acquire farm land to replace that damaged to such an extent that it is incapable of cultivation within a reasonable time. Grants may be paid to such persons under regulations prescribed by the Minister of Liberated Regions.

New Zealand has made provision for settlement of its discharged soldiers on the land, which is reported to be progressing rapidly. A considerable number of the British Expeditionary Force have also acquired land under these provisions. The tenures under which land may be held are especially suited to meet the needs of soldiers. An advance of £2500 may be made to assist in acquiring freehold land or land held under lease from a land board, the purchase price with interest at 5 per cent being payable in installments over a period of 36½ years.

In Belgium lands in the war zone devastated by shell fire will be taken over by the government, the farms worked and finally turned back to the original owners in good condition. The government will pay 5 per cent interest on the pre-war value of such lands while carrying them on, and is also prepared to buy them outright if the owners wish to sell.

Land reclamation was carried on in Germany during the war with the aid of prisoners. A writer in the *Journal of the Board of Agriculture* (October, 1919), describes the reclamation of a tract of 18,000 acres near Hanover, on which he was employed.

The long-projected plan for reclaiming the land covered by the Zuyder Zee in Holland has been begun. This involves the reclamation of about 800 square miles flooded by the sea 700 years ago. The area is expected eventually to support a population of nearly 250,000 persons. The work is to be spread over 20 years, and will cost about \$100,000,000.

A royal decree has recently been issued in Italy looking to the proper use of land in the production of food. The withholding from cultivation of large tracts which neither the land owners nor the State seemed disposed to develop or to lease on favorable terms, has aroused much dissatisfaction, and in August such tracts in

200 localities near Rome were seized by farmers, chiefly at the instigation of the League of Fighting Soldiers. This led to the decree, which secures for four years farmers belonging to legally constituted agrarian associations, and under certain provisions permanently, the land owners to receive fair compensation. The decree also provides for granting State assistance when desirable.

FARM LABOR. The situation in the United States was less serious than in the previous year, but there was still considerable difficulty in getting experienced labor for special forms of work or at times of pressure. Concessions have had to be made to laborers in the matter of hours and conditions, as well as of wages. The latter have reached unprecedented figures, especially for day labor.

Wages for farm labor in the United States have more than doubled since 1902 and have increased from 43 to 64 per cent for the different classes of hirings since 1916, or a general average of 53 per cent. In the past 25 years, dating back to the industrial depression of 1893-97, the rates for farm labor have increased from 165 to 229 per cent for different classes of hirings. Day wages have increased in greater proportion than wages by the month, and wages for work outside of harvest have advanced more largely than those for harvest work.

In England the labor question has become the most difficult of all with which agriculture is confronted. The supply has become short, and wages, hours, and living conditions have sprung into unusual prominence, causing great anxiety among farmers. Under the Corn Production Act, passed during the war, farm labor was guaranteed a minimum wage. The Premier and the President of the Board of Agriculture have both defended this, and have declared that wages and living conditions in the past were scandalous, and an injury to the best interests of agriculture. It is contended that farming can be adjusted so as to enable a wage comparable with that of other labor in rural localities; and laborers have been counseled in their own interest to be reasonable in their demands, and not to agitate for the inclusion of farm labor in the 48-hour bill, which would be fatal to agriculture.

German prisoners of war continued to be considerably used in farming operations in Great Britain, and there was considerable regret on the part of farmers when they were released in the fall.

A new agricultural laborers' code was issued in Germany early in the year, which aims to regulate conditions of labor on the land, to check exodus from the rural districts, and to attract urban wage earners to agriculture.

The first annual convention of the Women's Land Army of America was held in Philadelphia early in the year. The Women's Land Army of England and Wales was disbanded at the close of November. Starting in the face of much prejudice and skepticism, the women won the gratitude of their employers and the admiration of the country. Premier Lloyd George paid a high tribute to them. They will be encouraged to remain in farm work as their services are still needed.

The first recruits were enrolled in March, 1917, and 23,000 were subsequently selected and placed, 15,000 receiving short courses of training. Two rewards of merit were given, the Good Service

Ribbon awarded to all workers who completed six months of satisfactory service, and the Distinguished Service Bar given for acts of courage, devotion to service, and special skill. Of the latter 46 were awarded.

FARM ORGANIZATIONS. During the war the farmers felt the need of representation through their larger National bodies, and the National Board of Farm Organizations was formed with headquarters at Washington. This was an attempt at a union of these bodies to promote and give publicity to matters of common interest. It is announced that this organization will build a "temple of agriculture" in the national capital, at a cost of \$1,250,000, as a general headquarters for the organized farmers of America.

The influence of the farmers was seen in the repeal of the Daylight Saving Law, which they regarded as disadvantageous to their work; and they have taken an increasing interest in labor legislation in its possible relation to hours and wages. They were represented at the industrial conference convened by the President in October, where the claims of agriculture were presented and the need for a considerate policy which would provide certain remedial measures was urged.

An organization which is potentially one of the largest organizations of farmers in the United States was effected in Chicago, in November, through the formation of the American Farm Bureau Federation. This is an outgrowth of the farm bureaus organized in the counties of many States, to support the agricultural extension work. These county bureaus have been federated in several of the States, and have come to represent the farmers in their broader relations. The object of the national federation is to correlate and strengthen the State farm bureaus, to promote, protect, and represent the business, economic, social, and educational interests of the farmers of the nation, and to develop agriculture. Ample funds are provided, and a paid secretary is to conduct the general business. (See also **AGRICULTURAL EXTENSION WORK.**)

Farmers in France are taking steps to form a national association which will include all present farm organizations of that country. French farmers feel the need of an organization to defend them against unfair charges and to represent them in national affairs.

The growth of coöperation, especially in marketing, in the United States is illustrated by the fact that no less than a billion and a half dollars worth of agricultural products are now marketed by coöperative agencies annually. Farmers' exchanges and coöperative associations organized with the aid of extension agents did business amounting to about \$42,000,000 the past year.

The human side of agriculture, the conditions of country life, its school facilities, healthfulness, means of communication, and comforts are receiving greatly increased attention from many sides. The Country Life Conference, organized early in the year, has become a large and quite influential body dealing with these matters; and the American Farm Economics Association has taken active hold of the problems in the field of rural economics and sociology. Both organizations held important meetings at Chicago in November. The farm management work of the Department of Agriculture has been given new direction, and broadened in scope to take in rural life questions; and marketing studies and aids

are rapidly developing in the States and under the federal government.

The Secretary of Agriculture has advocated the development of strong State departments of agriculture and has pointed out the special field of such departments as distinguished from those of the agricultural colleges. A general understanding has been entered into between the State departments or boards and the agricultural colleges, under which the latter would confine themselves in general to investigational and educational work, both at the colleges and in the field, and the departments or boards of agriculture to administrative and regulatory matters. The departments have been reorganized in a number of States in accordance with this general plan. A new department of agriculture was established by State law in Idaho, a commissioner being appointed and a board of nine agricultural advisers. Regulatory duties, agricultural fairs, and the promotion of marketing are to constitute its principal duties.

The type of administrative officers of these departments is also changing, recent appointments in a number of the States having been made of men especially qualified through education and experience. During the year Prof. Fred Rasmussen, professor of dairy husbandry at the Pennsylvania State College, was appointed secretary of agriculture in Pennsylvania, and Dr. A. W. Gilbert, formerly professor of plant breeding and a specialist in the wider ranges of agronomy, was appointed commissioner of agriculture in Massachusetts.

In England the Right Hon. Lord Lee of Fareham succeeded Lord Ernle (Mr. R. E. Prothero) as President of the Board of Agriculture, and under his direction the board was reorganized into three main departments, each headed by a director general. In Canada Dr. Simon F. Tolmie was appointed Minister of Agriculture, and Dr. J. H. Griswold Deputy Minister. Provision has been made in France for departmental and regional chambers of agriculture; and a royal decree in Spain established an official chamber of agriculture in each province. The restored Polish State has founded a department of rural husbandry.

David Lubin, founder of the International Institute of Agriculture at Rome, and the American representative on its permanent board, died early in the year.

NEW BOOKS. The effects of the war on agriculture are shown in a volume by Prof. B. H. Hibbard entitled *Effects of the Great War upon Agriculture in the United States and Great Britain*, issued by the Carnegie Endowment for International Peace (Washington). The rural problem, rural organization, and rural democracy are treated in *The Farmer and the New Day*, by President Kenyon L. Butterfield (New York, 1919); and an analysis of the factors and problems of rural life is presented in *Rural Life*, by Prof. C. J. Galpin (New York, 1918).

AGRICULTURE, UNITED STATES DEPARTMENT OF. In his annual report for 1919 the Secretary of Agriculture calls attention to the great service which American farmers rendered to the impoverished people of Europe by producing food in such abundance that vast quantities of bread grains, meats and fats were available for export.

In 1919 American farmers planted an acreage in leading cereals greater by 33,000,000 than the

pre-war annual average, with an estimated yield of 635,000,000 bushels more than the average and increased the number of milch cows over 1914 by 2,700,000, of other cattle by 8,500,000, of swine by 16,700,000 and of horses and mules by 1,000,000, or a total of 28,900,000.

The exports of foodstuffs, enormous during the war, rose greatly between the armistice and the midsummer of 1919, including 448,000,000 bushels of cereals, 781,000,000 pounds of dairy products, and 3,300,000,000 pounds of meat and meat products. The total value of the crops produced in the United States in 1919 was \$14,000,000,000 as compared with \$6,112,000,000 in 1914 and the value of livestock on farms in 1919 was \$8,830,000,000 as compared with \$5,890,000,000 in 1914. "The increased values reveal that the monetary returns to farmers have increased proportionately with those of other groups of producers in the nation and that their purchasing power has kept pace in the rising scale of prices."

He also presents evidence showing that, contrary to what is often asserted, there has been in recent years an upward tendency in the acre yields as the result of improved processes and better practices and that this is so even in the older regions, such as the New England and North Atlantic States. Among the factors which have contributed to this result are the use of more efficient farm machinery, better crop rotations, better crop adaptations to soil and climate, planting of varieties resistant to diseases and insects, more prevalent control of diseases and insects, increased and more intelligent use of fertilizers. While some other countries produce greater yields per acre due to more intensive cultivation with cheap labor the American farmer produces more per man on larger areas. For example, in Belgium, 5.3 acres are cultivated for each person engaged in agriculture, whereas in the United States the corresponding figure is 27 acres. In this connection it is also well to remember that the United States has the most widespread and effective system of research and education in agriculture through its national and State departments of agriculture, agricultural colleges and schools, experiment stations and extension agencies.

The Secretary also combats the too prevalent notion that there should be a rapid expansion of the area of cultivated land and holds that "it is not in the interest of producers or consumers to have large fluctuations in agricultural production. There will be farmers enough, if the business of farming is made profitable and if rural life is made attractive and healthful. The consumers must be willing to pay prices for farm products which will enable farmers to produce them and to maintain a satisfactory standard of individual and community life."

Good schools and roads are requisite. Sanitary and medical services, including hospital facilities, are among the things which country people must have to make them willing to stay on the land.

Expert investigation, service and advice should be invoked to aid in the problems of further expansion of the cultivated area and the plans for land settlement. Neither sentiment nor selfish greed should be allowed to determine the policy of the country on those matters. The advantages of tenancy under proper conditions for young men as a means of acquiring experience in

farm management and accumulating capital to purchase and operate farms is pointed out, as well as the need of improvement in the conditions of leasing and measures to make the road to farm ownership as smooth as possible. A warning against the rising tide of land speculation is also given.

The adoption of a more comprehensive and effective forestry policy by both the States and the nation is strongly urged. The care and development of farm woodlands, and in general the better management of private forests is essential. The area of public forests should be extended through federal and State legislation. Adequate fire protection under public auspices should be provided.

The plans of the Department for the expansion of its organization and work relating to agricultural economics and sociology are described and it is again recommended that the present Office of Farm Management be changed to a Bureau of Farm Management and Farm Economics. Further development of the crop and livestock reporting service and the market news service is also urged. The rapid progress in formation of farmers' coöperative organizations is shown. It is estimated that such associations now market annually \$1,500,000,000 worth of commodities. As a rule they have been successful where they have centred their activities on some one product or on related products in a given area. The Department, through its Bureau of Markets, and the coöperative extension agencies in the States and counties are greatly stimulating and guiding this movement. Great progress has been made in the construction of good roads under the Federal Good Roads Act. The approved projects call for the construction of 18,596 miles of road at a cost of \$225,267,847, of which the federal contribution will be about \$95,500,000. During the next two years at least \$1,000,000,000 of federal and state money will be available for road improvement. The Secretary opposes the suggestion that federal supervision of highways should be taken from the Department of Agriculture and placed under a federal highway commission, which in his opinion would be more expensive and less satisfactory to the States than the present organization in the Bureau of Public Roads.

A brief summary is given of the federal legislation enacted during the past six years for the promotion of agriculture, including the establishment of the Bureau of Markets, the Smith-Lever Agricultural Extension Act, the cotton futures, grain standards, warehouse, road aid, reserve banks, farm loan, and vocational education acts. Additional measures are recommended as follows: A system of personal credit unions, primarily under State law especially for the benefit of farmers of small means; expansion of existing agencies for aiding farmers in marketing and stimulating coöperative enterprises; regulation and control of stockyards and packing houses; further protection of consumers against misbranded, adulterated and worthless feeds and fertilizers; increased support of rural schools by the State and more definite instruction relating to rural problems and conditions; and legislation to improve rural sanitary conditions and provide hospital and medical facilities for country people.

The regular appropriations for the Department for the year ending June 30, 1920, amounted to

\$33,900,211, an increase of \$6,024,858 over those for 1919, but the war emergency appropriation of \$11,346,400 was discontinued. However, under permanent appropriation acts the Department controls the expenditure of additional amounts, aggregating \$28,235,000, the most important items being the road fund of \$21,000,000, the extension fund of \$3,080,000, and the meat inspection fund of \$3,000,000. The appropriation for indemnities to owners of tuberculous animals was increased to \$1,500,000; for combatting the European corn borer, recently introduced into Massachusetts, \$250,000; for further purchases under the Appalachian Forest Reserve Act, \$600,000; for establishing a licensing system for the stockyards, \$75,000. The funds for controlling various plant diseases and insect pests were considerably increased. The regular appropriation for the Bureau of Markets was increased from \$2,023,255 to \$2,811,365. The appropriations for the Forest Service aggregated \$5,966,869, but this will be offset by receipts from the national forests, which in 1918 were \$3,574,930.

The Urgent Deficiency Appropriation Act, approved Nov. 4, 1919, added \$45,000 for control of the Japanese beetle and \$2,950,000 for protection against forest fires.

AINU. See ANTHROPOLOGY.

AIRCRAFT. See AERONAUTICS; MILITARY PROGRESS; NAVAL PROGRESS.

AIRPLANE. See AERONAUTICS.

AKASHI, MOTOJIRO. Japanese governor of Formosa, died at Tokio, October 24. He was born in 1864 and studied in Germany. During the war between China and Japan he was on the staff of the guard division. From 1907 to 1914 he was commander of the gendarmes, and inspector-general of police in Korea. Shortly before his death he had been raised to the command of the sixth army division.

AKRON, OHIO. See GARBAGE.

ALABAMA. POPULATION. According to the census of 1910, there were 2,138,273 residents of the State on January 1st, and on July 1, 1919, the population was estimated to be 2,426,602, a gain of 31,000 in the year.

AGRICULTURE. The following table is compiled from the estimate of the United States Department of Agriculture, for the month of December, 1919, covering the year 1919:

Crop	Year	Acres	Prod. Bu.	Value
Corn	1919	4,334,000	62,843,000	\$99,920,000
	1918	4,378,000	63,919,000	94,600,000
Wheat	1919	138,000	1,242,000	3,043,000
	1918	162,000	1,458,000	3,572,000
Oats	1919	372,000	6,696,000	7,031,000
	1918	428,000	8,132,000	8,701,000
Tobacco	1919	3,000	21,890,000	567,000
	1918	1,500	21,050,000	815,000
Rye	1919	4,000	38,000	99,000
	1918	4,000	44,000	115,000
Rice	1919	600	16,000	43,000
	1918	600	15,000	22,000
Potatoes	1919	44,000	3,520,000	7,568,000
	1918	60,000	4,800,000	8,688,000
Sweet potatoes	1919	151,000	14,194,000	16,139,000
	1918	148,000	14,208,000	16,339,000
Hay	1919	1,367,000	51,367,000	30,484,000
	1918	1,248,000	51,007,000	20,442,000
Cotton	1919	2,621,000	7,715,000	124,410,000
	1918	2,570,000	7,801,000	108,084,000
Peanuts	1919	380,000	6,840,000	14,911,000
	1918	543,000	12,489,000	17,609,000

a Pounds. b Tons. c Bales.

TRANSPORTATION. During the year 1919 there was built in the State, by two companies, 11.50 miles of first track.

LEGISLATURE. The quadrennial session of the Legislature of Alabama was held early in the year. An early summer recess delayed final adjournment until September. Under the leadership of Gov. Thos. E. Kilby the Legislature enacted a number of measures of far reaching importance. Among the more important of these were: A workmen's compensation law finally agreed upon by special civilian committees representing employer and employee; a special tax of three cents a ton on iron ore and two cents a ton on coal produced in the State was levied; a State income tax modeled after the federal tax was imposed; two important amendments to the constitution were submitted to be voted upon early in 1920. One provides for the issuance of \$25,000,000 road bonds and all automobile license taxes are set aside to pay interest and provide a sinking fund for these bonds. The other amendment gives a number of the cities of the State power to increase their tax rate to provide for local needs. The Legislature also formally rejected the woman's suffrage amendment to the federal constitution; special prohibition enforcement laws were enacted, a State enforcement bureau being created with funds to carry on the work.

POLITICS AND GOVERNMENT. In September C. B. Rainey, Democrat, was elected to Congress over J. R. Kennamer, Republican, in the 7th Alabama district to succeed John L. Burnett. One of the important industrial events of the year was the opening of the Warrior River to navigation, the first ship steel going from Birmingham by water in November. The Port of Birmingham corporation was formed during the year and began building river terminals at Short Creek on the Warrior to handle Birmingham traffic. The port was scheduled to begin operations Jan. 1, 1920. The railroad administration during the year allowed new freight tariffs giving the water route from Birmingham to the gulf a 20 per cent reduction from the rail rate. It is expected to be very important in handling coal and iron to tidewater. In November the shipping board allowed a differential of \$1.50 per ton on coal from Gulf ports as compared with Atlantic ports on coal for South and Central America. With the European coal supply curtailed this is expected to be of great advantage to the Alabama coal fields. The nationwide coal strike called in October never became serious in the Alabama field. Production was probably cut 50 per cent during the first two weeks. After that there was a steady increase to normal which had been reached some time before the strike was finally called off. The steel workers' strike created scarcely a ripple in Alabama. Early in December floods did serious damage in South Alabama, especially in the vicinity of Montgomery and along the Alabama River. The heaviest loss was in the destruction of livestock. See CHILD LABOR; COTTON; WORKMEN'S COMPENSATION.

ALAMEDA, CAL. See CITY PLANNING.

ALASKA. No other portion of the United States has suffered as seriously from the economic conditions caused by the world war as Alaska. To an extent unequalled elsewhere her men of military age responded to the call of the nation, thus causing in the territory an unprecedented scarcity of labor. Supplementary to this shortage, the lack of transportation, the cost of food, the increased scale of wages and

on streams; sanitary inspection of fish establishments; the creation of a ship and of a fish commission defining criminal syndicalism and prescribing punishment therefor; and fostering Americanism by establishing citizen night-schools, etc. Territorial finances felt the general strain. The total receipts for 1918 were \$475,450 while the appropriations by the legislature aggregated \$682,493.11. The most important legislation by Congress for Alaska was the increasing the limit of the cost of the United States railroad from thirty-five to fifty-two million and an appropriation of \$8,000,000 for construction and for the work.

steadily increasing. The value of American shipments of large redwood in Alaska, which in recent years had three-fourth million, suffered the past year very years are: 1916, \$1,097,970,650; 1917, \$121,265,947; 1918, \$131,767,488; and 1919, \$117,018,135. The greatest loss in value was in metallic products, the twelve million dollars being about equally divided between gold and silver. Considerable offsets these comparative values is in fur products—gold and silver dollars being about should be borne in mind that considerable offsets were gains of a million of dollars in fur products and of five millions of dollars in fish values. It the world war. In quantities the significance of steady inflation of prices since 1914. In outward shipments were 2679 paired by the and 41,777,114 pounds of canned salmon beginning of more important losses are fresh fish—larger gains pounds; copper, 23,286,335 pounds, seal skins, and silver to the value of \$3,792,736. The creases of shipments inward were \$8,856,154 mon. The largely distributed, aggregating \$8,736,048 gold which the most valuable are steel-rails, the de- tons, and tin plates—for fish industries—4 reg- 419 pounds. Commerce suffered sadly from of sufficient and irregular oceanic transportation 7853 which was reduced about one-half for all ports, while it practically ceased at some stations. In-

AGRICULTURE. The persistent efforts of the U. S. Department of Agriculture to promote agts, cultural industries in Alaska have been far more successful than was generally expected. The great extent of the territory and the very wide diversities of climate and of soil have been wisely recognized by the establishment of five experimental stations,—Sitka, largely horticultural; Rampart, forage plants; Kodiak, stock farming; Fairbanks, model-farming; and Matanuska, dairy and vegetable. The pioneer farmers have greatly benefited by such experimental work. The central Tanana valley is the section that has been most extensively occupied by farmers, and in the Fairbanks district there are now 93 homesteads comprising 22,613 acres. The farmers of the Tanana are yearly growing large crops of Siberian wheat and other hard grains, and the productivity is such as to permit an early date sufficient grain to furnish wheat for the entire Yukon valley. At present local needs are largely met through the installation of a flouring mill which is available for grinding wheat there raised. Along the present railroad in the Matanuska valley many homestead entries have been lately made and for farms were successfully cultivated during the past year. Outward shipment of vegetables from this section indicate the scope and value of these packing industries. When the railroad is opened,

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LEGISLATION. The territorial legislature held its fourth biennial assembly in March and April 1919, and enacted 59 laws. Supplementary to an appropriation of \$92,400 for relief purposes a special appropriation of \$93,000 was made for the sufferers from influenza, of whom 90 per cent were natives. Among the more important laws were new and increased taxes on fish products; prohibiting the pollution or obstruction of salm-

from Seward to Fairbanks the Tanana products will enter this channel of traffic.

FISHERIES. The annual report for 1918 of Dr. H. M. Smith, U. S. Bureau of Fisheries, contains the latest complete data on Alaska fisheries. As in recent years fish is the most valuable of Alaskan products, being in 1918 three and a half times greater than that of copper, the next product in rank. The extent of the fishery industries appears from the investment of \$73,750,789 in 1918. The force employed, 31,213, consisted, in its principal components, of 17,693 whites, 5251 natives and 5581 Orientals, of whom there were 14,657 in southeastern, 6219 in central and 10,337 in western waters. The total value of fishery products increased from \$51,476,980 in 1917 to \$59,154,859 in 1918. In the latter year 90.5 per cent pertained to salmon, 3.1 to herring, 2.9 to halibut, 1.6 to cod and 1.4 to whales. Judged by the shipments from Alaska of fish during the nine months ending September 30 the fishery products of 1919 will approximate \$60,000,000 in value. There are however large decreases in amounts, approximately 19,000,000 pounds of salmon and 1,500,000 of other fish, principally those shipped fresh. Among the minor fisheries the following are noted: Owing to the introduction, through the U. S. Bureau of Fisheries, of the Scotch curing method, the herring industry has greatly increased, and has displaced halibut as the second fish of value. The personnel and investment in the herring fishery increased from 214 and \$562,002 in 1917 to 884 and \$1,802,000. The aggregate value also increased from \$1,051,089 to \$1,802,817, and the Scotch-cured product of 9,744,175 pounds, exceeded the Norwegian-cured by 775,660 pounds. Judging from the shipments up to September the value of the herring products will approximate \$2,500,000 in value. The halibut fishery affected by the war in 1917, increased its output to a value of \$1,667,686 in 1918, when its personnel of 1186 caught 13,869,706 pounds. The whaling fishery of 325 persons caught 448 whales in 1918, 25 more than in the preceding year. Serious depletion of the clam beds reduced that industry in 1918, but trout increased from \$16,896 to \$33,684 in 1918. Cod fishery remains about stationary, being valued in 1918 at \$957,184.

The salmon holds its own as the predominant product of Alaska. The over-exploitation of the fisheries, encroachment on the spawning streams, and invasion of streams which serve as food supplies for the natives have caused grave fears for the future, which the reduced catch of 1919 appears to justify. The U. S. Bureau of Fisheries, in whose charge the salmon fisheries are entrusted has had great difficulty in enforcing existing laws, and in conserving the salmon fishery as a perpetual source of wealth to the nation. The salmon industry has grown to enormous proportions and in 1918, the last year of which full data are available, the invested capital exceeded \$66,000,000 and gave employment to 27,969 work people, with wages of more than \$25,000,000. Besides the canned fish, later considered, the salmon products were thus valued: Mild-cured, \$607,951; pickled, \$1,079,881; frozen, \$170,864; fresh, \$386,576; dry-salted, \$47,544; dried and smoked, \$140,000; by-products (oil and fertilizer) \$35,423.

SALMON CANNING. The canneries in late years produced the following number of cases of 48-

pound standard: 1916, 4,900,827; 1917, 5,947,286; 1918, 6,605,835; while that of 1919, estimating from shipment to October 1, about 5,500,000 cases. Both in quantity and in value the pack of 1918 far exceeded any previous output. Backed by an investment of \$63,901,397, the 26,502 employees in the 135 canneries put up 6,605,535 cases having a value of \$51,041,949, exceeding the catch of 1917 by 658,549 cases. The percentage by species, and the value per case in 1918 were: 38 per cent ted or sockeye, \$9.44; 37 humpback or pink, \$6.58; 21 chum or keta, \$6.27; three coho or silver, \$9.15; and less than one per cent king or spring, \$9.85. Pushed to the extreme the salmon fishermen exploited new streams, encroached on prohibited waters, interfered with the spawning fish, and entered preserves heretofore utilized solely by natives. The outcome of these extensions created fears of over-exploitation, which in a measure appear to be justified by the decreased products of 1919. Supported by the more progressive salmon companies, the U. S. Bureau of Fisheries used its limited force and vessels to protect the hatcheries, prevent fish-piracy, to safeguard the interests of the natives and the fishermen equitably. After public hearings limitations and prohibitions, which went into force on Jan. 1, 1919, were promulgated by the Secretary of Commerce, under Section 6, act approved June 26, 1906, as to the Yukon and Copper Rivers, and the streams of southeastern Alaska. Limitations and prohibitions also obtain as to Wood and Nushagak Rivers, all streams flowing into Cook Inlet, Eyak Lake, Eyal River, Yes Bay and stream, and the reserves of Afognak, Aleutian Islands and Annette Island. These regulations will do much to restrain the tendency of unrestrained commercialism to destroy the salmon fishery of future years. The territorial officials and legislators recognize the dangers of over-exploitation and are coöperating with the national government in safeguarding the sources of salmon wealth.

FUR-SEALS. Under the conservative legislation of Congress, and through the judicious and scientific administration of the U. S. Bureau of Fisheries, the fur-seals of the Pribilof Islands have steadily increased in numbers, and are now a valuable national asset. The closed season for the rookeries ended in the autumn of 1917 and the following year they were utilized for commercial purposes. The growth of the seal-herds is shown by the census, taken annually: 1915, 363,782; 1916, 417,281; 1917, 468,692; 1918, 496,432; and 1919, 524,269. This includes animals of all ages, but excludes those taken in these years for skins and for food for natives. The exploitation of the rookeries began in 1918, when 34,890 seals were taken. In that year there were two sales in St. Louis of dressed, dyed and machined fur-seal skins, when 8100 skins were sold for \$375,385, an average of \$46.34 per skin. In 1919 the number of seals taken was 25,381. Of these there were more than 6400 large males, who were in such large and disproportionate numbers as make such action advisable. It was the intention to take 35,000 seals, but the epidemic and consequent inability to obtain additional native labor made such action impossible. Under the international convention 15 per cent of seals taken go to Canada and an equal number to Japan. Authorization was granted to take as food for the

natives 1500 large seal during the winter 1919-1920.

The skins of these large male seals, called "wigs," were formerly considered to be of small value, but they are now the most valuable of all. The collection of old seal-bones netted \$3,891, and the rendering of seal-oil and manufacture of fertilizer have also been notably successful, the sales approximating \$4000 in 1919.

MINOR FUR-BEARING ANIMALS. Although recent years show increases in the Alaskan pelts (fur-seal not considered) in number and in values, these are the result of systematic hunting and of increased values. It is generally admitted that the fur animals of Alaska are decreasing in number. The Department of Commerce has endeavored to conserve Alaskan game by closed season and other limitations and prohibitions. The use of dogs is prohibited, and closed seasons are in force for sea otter to 1920, marten to 1921, beaver to 1923, and polar bears indefinitely. Excluding seal-skins the value of Alaskan pelts in 1916 was \$931,771; in 1917, \$1,064,250, and in 1918, \$1,363,601. To Oct. 1, 1919, fur shipments exceed those for 1918 to the value of \$377. Among notable increases in value since 1916 are beaver, \$6.50 to \$21; wolf, \$7 to \$18; marten, \$9 to \$19; lynx, \$12 to \$26, and red fox, \$12 to \$28. The largest number of shipments include marten, 1023; bears, 1276; otter, 1648; lynx, 7692; ermine, 9133; foxes, 20,364; mink, 24,572, and muskrat, 86,624. Of the 1432 blue foxes 692 were trapped on the Pribilof Islands.

REINDEER. Definite data relative to the number of reindeer in Alaska are unavailable, but the herds probably exceed 125,000 head. The distribution among the natives has been practically completed. The United States now owns less than 3 per cent, and the Laplanders and other whites about 25 per cent. Efforts by white owners to commercialize the deer as a source of meat supply have progressed quite satisfactorily, and it is believed that similar action will be taken by the natives in certain sections. The normal increase in the herd and their satisfactory utilization in the life of the natives have been checked by a variety of diseases. The Alaskan Bureau of Education has taken the problem in hand, and through the investigations and directions of a skilled veterinarian, stationed in the Norton Sound country, hopes to improve the breeding, training and care of the reindeer herds owned by the natives. The deer on the Pribilof Islands have increased satisfactorily, and numbered in 1918, 269; the surplus males, 20 in number, were used as food in that year.

ALASKAN MINERAL PRODUCTION. Impaired transportation, reduced working force, costly material, and exhaustion of rich gold placers explain the reduction of mineral outputs since 1917, so that the values are the smallest of any year since 1914. In recent years the production has been: 1915, \$32,854,229; 1916, \$48,632,212; 1917, \$40,700,205; 1918, \$28,253,961, and 1919 (estimated) \$19,065,666. The latest available data are for the year 1918, to which period the total mineral output of Alaska had reached a value of \$418,540,092. By substances there had been produced: Gold, \$303,238,961; copper, \$105,743,033; silver, \$5,598,314; coal, \$41,096,913; tin, \$844,572; lead, \$449,496; antimony, \$337,500; marble, gypsum, petroleum, etc., \$2,331,303. In annual production gold yielded the

first place to copper in 1916, and is seemingly destined to also be displaced by coal at an early date. Of the present prospects, Mr. A. H. Brooks, U. S. Geological Survey, the recognized authority, says: "Continued success of certain larger ventures, like dredging, shows that the outlook for gold mining is by no means hopeless. Large reserves of gold-bearing gravels can be mined profitably when transportation conditions are improved. The high price of silver has caused to be made promising discoveries of silver-bearing galena lodes."

GOLD AND SILVER. The annual production of gold has fallen off two-thirds in the past nine years, from the maximum of \$29,411,716 in 1909, to \$9,480,952 in 1918. This reduction has arisen in large part from the precarious methods of depending on the discovery and exploitation of rich bonanza placers, to the neglect of systematically developing larger gravel deposits of lower grade, and the gold-lodes. Of the total gold there came from placers 70.5 per cent, from siliceous ores, 29, and from copper ores, 0.6 per cent. The changes in gold mining are plainly shown by the output in 1918 of which the percentages were: placers, 62.2, siliceous ores, 36.6 and copper ores, 1.1. The average production of gold and silver from ores per ton was as follows: Southeastern Alaska (the centre of low-grade mines) 2,085,915 tons, \$1.56; Prince William Sound, 444 tons, \$27.24; Kenai peninsula, 207 tons, \$29.94; Willow Creek, 7976 tons, \$33.90, and Fairbanks district, 1035 tons, \$26.44. In 1918 the 574 placer mines produced about \$45,900,000. There was a falling off in values generally, except in the Copper River, the Yentna and some small Yukon districts. In 1919 the summer mines decreased over one-fourth in number, and the miners by 900, with a lessened output of about \$4,790,000, a reduction of 18 per cent. The 28 dredges in placer mining showed in 1919 a decrease of 22 per cent in their output of about \$1,100,000. The largest productions by districts in 1918 were: Yukon Basin, \$4,264,000; Seward Peninsula, \$1,108,000; Copper River region, \$239,000. The gold recovered from sluiced gravel has fallen from \$3.74 per cubic yard in 1908 to \$1.20 in 1918. It is significant that while the reduction per cubic yard from 1911 to 1918 has fallen in ordinary placer mines from \$2.17 to \$1.20, it fell with dredges only from 60 cents to 57 cents. Silver production passed the million mark (\$1,021,060) in 1917, but dropped to about \$650,000 in 1919. More than four-fifths of the silver is from copper ores. During 1919 there have been discovered in the Portland Canal region in Seward River basin, large auriferous lodes carrying high values in silver.

COPPER. The production of copper in 1917, 88,793,400 pounds, valued at \$24,240,598, decreased in 1918 to 69,224,951 pounds, valued at \$17,098,563,—a loss due to shortage of labor and ships. The number of mines operated and of ore obtained were by districts: Ketchikan, 7, 21,683 tons; Chitina, 5, 264,538 tons; Prince William Sound, 5, 435,826 tons. The average content of ores was 4.5 per cent copper, with gold \$0.139 and silver \$0.9323 per ton. Many copper prospects were made, but their development awaits cheaper labor and transportation. In 1919 the number of operating mines dropped from 17 to eight, which produced about 44,800,000 pounds of copper, valued at \$8,500,000. The

largest and best fitted mines in operation were the Salt Chuck, the Rush and Brown, in southeastern Alaska; Bonanza, Jumbo and Mother Lode in Chitina, the Beatson-Bonanza and Ellemar, in Prince William Sound.

LEAD. The output of lead increased from 564 tons in 1918, to about 800 tons in 1919,—practically all a by-product of gold-lode mining.

TIN. The York district, Seward peninsula, continues to be the main field of tin mining. The product of 1918, 68 tons of metallic tin, fell off to about 40 tons in 1919. The maximum product was 139 tons in 1916.

MISCELLANEOUS. Small quantities of platinum were obtained in 1919 but the production of antimony, chromite and tungsten have ceased.

PETROLEUM. The petroleum deposits of Alaska remain in the same condition of national restriction. There were more than 26,000,000 gallons of petroleum products shipped into Alaska during 1919. The single patented oil land, in the Katalla field, increased its output which is locally used. Whenever an oil-leasing law is enacted by Congress the petroleum resources, which are thought to be large, will be speedily developed, especially in the regions of Copper River, Cook Inlet and the Alaska Peninsula.

COAL. The coal production of 1917, 53,955 tons, increased in 1918 to 75,806 tons valued at \$411,850. This was practically the work of the Alaskan Engineering Commission, which mined 84 per cent of this amount by operating the Eskra Creek and Chickaloon mines of the Matanuska field. Largely under the free-permit system for local use, lignite was mined in small quantities in the districts of Cook Inlet, Susitna, Yentna, Unalaklik, Kobuk and Nenana. The Alaska Petroleum and Coal Company, which has patented claims in the Bering River field, has built a railroad to its mine and is making small shipments of semianthracite. The most important operations in 1919 were the governmental mining of the Matanuska field, the commencement of leasing in the Bering River section, and the initiation of mining of the Nenana lignite. About 53,000 tons were mined in the year, of which 11,000 were lignite. Operations at the Eskra mine indicate deposits of a million tons of bituminous coal. About 100,000 tons of high-grade bituminous coal has been blocked out at Chickaloon. Extended development of these deposits by private enterprise cannot be expected until the leasing restrictions are slightly modified.

NATIVES. The past fifty years have seen the native population decimated in numbers, their food supplies on sea and land diverted or destroyed, their environment entirely changed, and their education and training largely neglected. Yet no single year has dealt so severely with them as 1919. Over 1200 adults have died of the influenza epidemic, and their means of livelihood have been sadly curtailed by the depression in business and the abandonment of industries. As Governor Riggs states that "Unless the native is healthy and self-supporting religious and scholastic education is largely waste effort." He recommends the elimination of communicable and hereditary diseases, and the training of the young in useful trades within the Territory. Properly cared for the native would become a valuable factor in industrial affairs. Such advance can be had only by lib-

eral appropriations which Congress shows reluctance to. Six millions in 1919 for the railroad, and about \$9 per head for the education of natives.

ALASKA NATIVE SCHOOL SERVICE. The 65 schools enrolled about 3600 and the maximum average attendance for any month was 75 per cent. Six schools were abandoned owing to inability to secure suitable teachers. The Federal appropriation of \$215,000 was but \$10,000 over that made 12 years since. The Americanization so strongly advanced as a policy towards alien emigrants is indifferently encouraged among American born natives in Alaska.

RAILROADS. The only passenger railroads under private control and in operation are those from Cordova to Kennecott, and Skagway to White Pass. A freight line is operated between Yakutat and Seetuck River, and from the Bering Coal field to barge navigation on Copper River; both are in furtherance of private business and not generally available to the public. The roads on Seward Peninsula have ceased to exist, owing to decrease in mining activities.

UNITED STATES RAILROAD. The most important and vital factor in the development of the resources of Alaska is the railroad under construction and operation by the Alaska Engineering Commission. Authorized by the act of Congress of Mar. 2, 1914, at a cost of \$35,000,000, its limitation was increased in October, 1919, to \$52,000,000, of which supplementary amount \$6,000,000 was appropriated for work during the season of 1920. The purpose of the project was to furnish economical and reliable transportation between an ice-free port on the Gulf of Alaska and the rich mines and cultivable lands of the Tanana valley and of the central Yukon valley. These interior sections were attainable by water only four to five months in the year, and at such cost for freight as to render profitable mining impracticable. The rail system when completed will comprise 601 miles of track. The main line of 471 miles standard gauge will connect Seward, an ice-free port on Kenai Peninsula with Fairbanks, the mining centre of Tanana valley. A broad gauge branch of 38 miles reaches Chickaloon, the central station for the development of the coal fields of Matanuska valley. Similarly a narrow-gauge road of 37 miles brings Fairbanks in rail connection with the placer and other mines near Chickaloon. The spurs, terminals and sidings are included in the remaining 56 miles of standard gauge. Although hampered both by lack of labor and of funds, satisfactory progress was made in 1919, and at the end of the season there were in operation a northern section of 143 miles, and a southern section of 276 miles. The construction of a bridge across the Tanana River is essential to the complete operation of the northern section. However, Fairbanks is not only in continual rail relations with its local mining district, but also with the coal fields of Nenana, though the Tanana bridge is necessary for the cheap and economical transportation of fuel. The southern section is in a most satisfactory condition, as it connects Seward with the Matanuska coal field, and with the interior country to a point 10 miles north of the crossing of the Talkeetna River. The headquarters of the rail system is at Anchorage, Cook Inlet, where offices, repair shops, warehouses, etc., have been built. There also the economical handling

of ocean freight has been ensured during the open season through dockage suitable for large steamers, the landing piers being provided with modern methods of handling cargoes. Fuel for the railroad has been secured through the efforts of the Engineering Commission, under whom 55,390 tons of coal have been mined in the Matanuska valley. There yet remains an unfinished gap in the railroad of 138 miles, from mile-post 238 from Seward to mile-post 376. Of this section there were 38 miles of completed grade at the end of 1919, while location surveys had been made for the greater part of the remaining distance. This indicates that the road will be so far completed in 1920 as to permit its operation from Seward to the Tanana River, if not into Fairbanks itself. The railroad town of Anchorage has become the main centre of Federal activities in the interest of Alaska. Besides developing the Matanuska coal mines, the commission opens towns, sells lots, encourages farming, utilizes forestal resources, and is assisted by the Federal subsidiary establishments of the Geological Survey and of the Bureau of Mines. Climatic conditions are indicated by the fact that in 1919 the temperature did not fall below 32° until September 29, and the first snow fell October 3.

FEDERAL AND TERRITORIAL ROADS. Under the Alaska Road Commission there has been expended to date \$4,920,655, of which 41 per cent has been contributed by the Territory through the so-called Alaska fund. Since 1905 there have been constructed and maintained 1031 miles of wagon road, 673 miles of sled roads, and 3223 miles of trails. Approximately 400 miles of wagon road have a light gravel surface. Supplementary to the insufficient Federal road work, the Alaskan legislature of 1919, enacted a road law, and appropriated \$375,000 to be expended under coöperative agreement with Federal agencies. Previously the Territory has partly constructed and wholly maintained 241 miles of wagon roads and 232 miles of pack or sled trails. Considering the whole of Alaska good roads are even more important than the Federal railroad.

ALASKA FUND. This fund is derived from business and trade licenses levied by the Federal government. These amounted in the incorporated towns to \$68,229, a decrease of about \$13,000 from 1918. From sections outside of incorporated towns the amount—\$280,907—was \$12,255 less than the preceding year. The governor urges that this fund be covered into the territorial treasury for expenditure by the legislature. Territorial finances are mentioned under: *Legislation*.

PUBLIC LANDS. Land surveys are progressing, after years of entire neglect. During the year 18 townships were approved, 11 on the Seward meridian, and seven on the Fairbanks meridian. Surveys are in progress on the Cook Inlet coast of Kenai Peninsula, north of Kachemak Bay and in Chilkat valley. To date 134 townships have been surveyed; 82 on the Seward meridian, 39 on the Fairbanks meridian and 13 on the Copper River meridian. Reorganization of the service is recommended by the governor, who points out that every land claim has to be considered by four Federal executive departments.

FORESTS. Governor Riggs does not believe in national forests for Alaska as they discourage settlements, obstruct business and prevent the

development of forestal wealth by private enterprise. There are two national forests, Chugach, comprising 5,417,852 acres, and Tongass with an area of 15,449,717 acres. During 1918 the U. S. Forest Service by an extensive reconnaissance survey classified the agricultural lands suited for settlement as distinctive from the forestal. As a consequence the Chugach forest was reduced by 307,800 acres of agricultural land, which through presidential proclamation of Apr. 16, 1919, were restored to the public domain. The areas thus eliminated include a strip of land three miles deep from Kachemak Bay to Kasilof River, and also much of the survey land near Anchorage, the base of the governmental railroad. There were temporarily withdrawn from the public domain, for forestal purposes, 199,680 acres near Lituya Bay, by proclamations of May 2 and Aug. 16, 1919. The receipts of the Chugach and Tongass forests for the year 1919, aggregated \$102,813, while the total cost of administration was \$43,454. During the year there were cut 42,295,000 board feet of lumber in the Tongass and 6,360,990 feet in the Chugach. There was also cut for the Alaska Engineering Commission about 5,758,000 feet for free use in railroad construction. It is to be noted that the Sitka spruce cut from the Tongass for airplanes was found to be inferior to the spruce cut in the forests of Washington.

MAILS. The unsatisfactory mail service, put into operation in 1918, yet continues to the disadvantage of all Alaskan business and affairs, and is the cause of much discontent. Mail is still shipped to Alaska as express and freight; steamers have no mail clerks; return-mail facilities are denied business; and the unguarded parcels by freight are frequently robbed. Deporable conditions existed west of Seward, where for two months during the influenza epidemic Kodiak and Afognak Islands were cut off from communication and so deprived of medical aid. Fortunately the telegraph system built by the Signal Corps of the army has continued its work, which is viewed by the governor as invaluable. Supplementary lines of telegraph and telephone erected as the railroad is extended, and other governmental bureaus are gradually installing radio stations.

AIDS TO NAVIGATION. The difficulties and dangers of coastal navigation are slowly ameliorated through the persistent efforts of the Light House Service, which in 1919 established 19 new lights, 12 buoys and three beacons. On June 30th, such aids to navigation numbered 459, including 178 lights and eight gas buoys.

NATIONAL PARKS AND MONUMENTS. The Mt. McKinley Park, the Katmai and Old Kasaan Monuments remain uncared for and unimproved, while the Sitka Monument has received scant attention. As regards the Katmai Monument its survey, investigation and description are due to the energetic and patriotic action of the National Geographic Society. The results of the six expeditions of the Society to Katmai are noted below.

VOLCANOES. Although no eruptions of destructive violence have recently occurred in the volcanic regions of Alaska, yet conditions are such as to render study and investigations of the volcanic system of special interest. With this in view the National Geographic Society sent in 1919 its largest and most expensive expedition to the Katmai region. Headed by Prof.

Robert F. Griggs, of the Ohio University, the party spent the summer in thorough scientific investigations and in extended explorations. Volcanic activities of many kinds were discovered; among others numerous fumaroles so hot that their gases set fire to wood. In a previously unexplored arm of the Valley of Ten Thousand Smokes new craters were found and examined. The processes of revegetation in the ash-covered regions were studied as also the lavas, incrustations and gases, local examinations being supplemented by large collections for laboratory study later. An artist of extended field service secured 10,000 feet of motion picture films, in addition to a thousand photographs, colored and plain. It developed that the number of active vents had been underrated, being nearer a hundred thousand, it is reported, than to ten thousand. It is hoped that the investigations of Professor Griggs, when supplemented by analyses of the collected volcanic material, may throw definite light on the problem of Alaskan seismology, which covers the most extended field in the world. Geographically the expedition made important contributions. To the north of the volcanic valley was found a region of great natural beauty, filled with abundant game. There were explored and surveyed about 2200 square miles in unvisited territory, in which was found a lake of considerable size. A new route to the Valley of Ten Thousand Smokes was discovered, making it easily accessible. A hundred miles of unexplored coast line, previously incorrectly mapped, was charted, and a fine harbor discovered.

ALBANIA. A geographical district made up of the former Turkish provinces of Scutari and Janina, and parts of the vilayets Monastir and Kossovo, whose political status was still indeterminate in 1919. The estimated area of this region is between 10,500 and 11,500 square miles and the estimated population between 800,000 and 850,000 of whom about two-thirds were Moslems. The remaining one-third, Christians, were divided into Roman Catholics in the north and the Orthodox Greek in the south. The figures for the Christian population vary, but the number of Greek Orthodox has been placed at 140,000, and of the Roman Catholics at 120,000. From 1914 the provisional capital has been Durazza, with a population estimated at 5000. Chief cities with estimated populations: Scutari (32,000); Elbasan (13,000); Tirana (12,000); Argyrocastron (12,000); Berat (8500); Korytza (8000); Valona (6500).

HISTORY. The most important feature of Albanian conditions brought out by the Peace Conference was the fact that the country was hopelessly divided against itself as to its future determination. Petitions were submitted to the Peace Conference from Moslems, Murdites, and Koritzans, and from Albanians abroad, all of whom disagreed as to who should control, but agreed in their dissatisfaction with the frontiers established by the London Conference of 1913. During the year the American Red Cross did valuable work in the distribution of supplies and the care of the sick. At the close of the year it was reported that the people were beginning to return to work and to cultivate their lands. Food was said to be sufficient to prevent actual suffering but a shortage was reported in sugar, oils and other articles. See **WAR OF THE NATIONS**.

ALBERTA. A province of northwest Canada lying east of British Columbia, west of Saskatchewan, and north of the United States, with an area of 255,285 square miles and a population in 1911 of 374,663, and in 1916 of 496,525, of whom 277,256 were males and 219,269 females, and of whom the rural population numbered 307,776 and the urban 188,749. Chief cities in 1916: Calgary, (56,514), and Edmonton, (53,846). Edmonton is the capital.

The constitution was established by the Alberta Act of 1905. The executive is nominally the lieutenant-governor, appointed by the Federal government, but actually the Executive Council or Cabinet of the legislature. Legislative power is vested in the Assembly, elected by universal suffrage, women having the right to vote. The lieutenant-governor at the beginning of 1919 was the Hon. R. E. Brett, and the Prime Minister, Hon. C. W. Stewart.

ALCOCK, Sir JOHN. British aviator, died in France, December 19. His death was the result of an accident when he was trying to alight on the Seine in a waterplane. During the war he fought in the Saloniki campaign and received the Distinguished Service Cross. He was an expert mechanic as well as thoroughly conversant with the principles and practice of aviation and he gave instruction in the art of flying to many thousands. In June, 1919, along with Arthur Whitman Brown he achieved the great feat of flying in an aeroplane from Newfoundland to the Irish coast without stopping. He left St. Johns, Newfoundland, in the afternoon and alighted near Clifden, Ireland, on the following morning at about 10 o'clock. This exploit was at the time without a parallel and Alcock and Brown became the heroes of the hour, the former being honored with knighthood. See **AERONAUTICS**.

ALCOHOL. See **CHEMISTRY, INDUSTRIAL; LIQUORS.**

ALCOHOL AND MEDICAL PRACTICE.

Considerable confusion seems to have arisen because of the statements by high medical authority that alcohol is no longer necessary in medical practice. This statement has been distorted to mean that alcohol has no medicinal value, which is quite a different proposition. Alcohol became displaced by the introduction of the hypodermic use of cardiac stimulants to tide the patient over dangerous ground in septic and toxic blood states. At present strychnine, digitalis and its active principles, strophanthus and its active principles, caffeine, camphor, adrenaline, nitroglycerine and numerous other drugs are all more or less used for this purpose. It has long been a law in drug therapeutics that the superior remedy economically will displace one which is less efficient, but it is also true that if the new remedy becomes scarce or disappears from the market, the older one comes back into use. This was realized during the late war, when the disappearance of numerous popular imported synthetic drugs made it imperative to return to the native remedies formerly in vogue. While there is no possibility that the cardiac stimulants above-mentioned will ever give out, it must be borne in mind that their use has certain limitations, as seen in great epidemics like influenza, where thousands of individuals are dangerously stricken at once. Most of the stimulants above-mentioned are powerful and the dose cannot be

repeated indefinitely, so that a high degree of personal supervision by physicians and trained nurses is required. Moreover there is no recognized standard of procedure in these cases, but each stimulant has its own indications and it requires a high degree of medical skill to determine the proper one to give in given circumstances. Hence it is not surprising that when a high army physician or civil health officer or hospital head has hundreds of alarming cases under his control at once, he must feel the need of a stimulant which can be given in a standard fashion, which requires no high degree of technical skill to administer it and which is not too dangerous to be repeated when necessary at short intervals. It is not absolutely claimed that alcohol is such a remedy but if it is not, then we have no remedy to meet these conditions. In ordinary winter grippe which begins with settled winter weather, to disappear in the spring, there is no real menace to the community. It is rather the individual who is menaced and the aged and debilitated one at that. Health officers have as a rule advised against alcohol for winter grippe. The patients are not as a rule in a condition so serious as to require heart stimulants and seek alcohol only to antagonize the extreme discomforts of the affection; so that very wisely the authorities discouraged the practice of self-medication with whiskey. The contrast between conditions here and in the pandemic should be sufficiently obvious. The Volstead enforcement bill allowed the sick man to obtain whiskey on a physician's prescriptions, but since the druggists would not take out liquor licences, there was no one to fill them. This attitude of the druggists was based on the dislike to bond themselves and to run the risk of penalties for purely technical offences, such as failure to make reports on time. The government toward the close of the year gave permission to certain distillers to make whiskey for medicinal use and it was understood that dispensaries would be forthcoming when needed, the present period being virtually an interregnum. No one knew whether or not medical men would take out permits to prescribe liquors, but experience with the narcotic laws seemed likely to deter many of them from such a course. The maximum guaranteed an invalid appeared to be three pints a month, prescribed at the rate of a pint every 10 days (if the prescription is rewritten). It was evident that many details must be threshed out by the courts and that no one could possibly foretell the status of alcohol in medical practice.

ALDEN, HENRY MILLS. American editor and author, died October 7 in New York City. He had been editor of *Harper's Monthly* since 1869, though he retired from active work some years ago. He was born near Danby, Vt., Nov. 11, 1836, and was a descendant of John Alden, worked in a cotton mill at the age of 14, but found time to attend school and prepare himself for college; entered Williams College in 1853 and supporting himself by teaching and other outside work, graduated in 1857. Among his fellow students were James A. Garfield, Horace E. Scudder, John J. Ingalls, and Washington Gladden; and the president at the time was Mark Hopkins. He graduated at Andover Theological Seminary in 1860, but did not take orders. He made his literary debut with some articles published in the *Atlantic Monthly* and

in 1861 he went to New York where he supported himself by lecturing in a girls' school and by writing articles for the newspapers. He entered the house of Harper and Brothers in 1862 and was manager of the *Harper's Magazine* from 1863 to 1869, when he became its editor. He was lecturer at the Lowell Institute 1863-64. He contributed for many years to the department of the magazine known as the "Editor's Study," and he wrote three books, namely: *God in His World*, (1890); *A Study of Death* (1895); and *Magazine Writing and the New Literature* (1908).

ALFALFA. The alfalfa crop in the United States in 1919 was roughly estimated as one-seventh of the total hay crop of over 108,000,000 tons. While the crop is now grown in every State, the principal production is in the western half of the country. Alfalfa is the chief hay crop in Arizona and Utah, where it constitutes about 65 per cent of the hay produced while in other western States the following percentages of the hay are alfalfa: Wyoming 60 per cent, Colorado 57 per cent, Nevada 55 per cent, Idaho 49 per cent, New Mexico 47 per cent, Montana 43 per cent, Kansas 42 per cent, California 39 per cent, Oklahoma 37 per cent and Nebraska 34 per cent. The average price of alfalfa hay to growers on the 15th of each month ranged from \$20.15 per ton on July 15th to \$23.32 on May 15th.

The alfalfa seed crop was reported as about normal although in some important seed-producing sections and especially in Kansas which normally is one of the main seed-producing States the crop was light. The stocks of seed in June, 1919, were reported as much lower than those of the preceding year largely as the result of a heavy spring demand. The seed sales for the year ending June 30, 1919, were estimated at 53,000,000 pounds, the exports at 316,425 pounds and the imports at 770,400 pounds. For the year ending June 30, 1917, the exports and imports were approximately 3,000,000 pounds each. The seed crop of 1919 passed from the grower to the dealer at a comparatively early date and at good prices. The larger portion of the crop was sold from \$12 to \$15 per bushel. Later in the fall even higher prices were secured and seed of Grimm alfalfa in certain sections ranged in price from \$24 to \$27 per bushel.

The hairy leaved Peruvian alfalfa is reported as gaining in popularity in the Southwest on account of its greater hardiness and yielding capacity as compared with the common variety. The results of experiments at the Missouri Agricultural Experiment Station in progress from 1910 to 1917 showed that the average cost of a ton of alfalfa hay loose and in the stack on the farm was \$9.34. The cost of production per acre was \$19.80. The crop paid the farmer for each ten hours of labor \$4.92.

ALGERIA. A French province in northern Africa comprising two great divisions; northern and southern Algeria, which in turn are divided into departments and territories as follows: northern Algeria into the departments Algiers, Oran, and Constantine, and southern Algeria into the territories of Ain Sefra, Touggout, Ghardaia, and the Saharan Oases. The laws for the provinces are passed by the French Chambers and arrangements not falling within the sphere of legislation are determined by decree of the presi-

dent. The administration whose centre is at Algiers is under a governor-general, assisted by a consultative council. Area including the new territories in the south, about 343,500 square miles; population 1911: northern Algeria, 5,069,522, and southern Algeria 494,306. The native population numbered 4,740,526 and the European 752,043. The chief towns with the population figures for 1912 were: Algiers, 172,397; Oran, 123,086; Constantine, 65,173 (these three being respectively the capitals of the provinces of the same names); Bone, (42,039); Sidibel-Abbes, (30,942); Tlemcen (39,874); and Blida (35,461). There is a university at Algiers (675 students in 1918). In 1917-18 there were 1305 primary schools with 3915 teachers and 146,508 pupils. The greater part of the country is unsuited for agricultural purposes, but in the neighborhood of the coast there is a limited area of highly fertile lands which are scientifically cultivated, and for the most part owned by Europeans. There are various systems of land tenure including proprietorship and the métayer system. The chief products are wheat, barley, oats, and other cereals, wine, oil, vegetables, tobacco, fruit, live stock, iron, lead, zinc, and other minerals. Considerable progress was made in the development of coal and lignite production during the war, owing to the increased demand for coal and other fuel. Phosphates in workable quantities have been discovered.

The yield of wine in 1918 was 137,129,718 gallons. The fisheries of Algeria are important and include sardines, allaches, anchovies, sprats, and tunny fish. In 1917 there were 3480 persons engaged in fishing.

FINANCE. The following table gives details of the 1918 budget:

Revenue		Expenditure	
	Francs		Francs
Taxes (direct)	19,676,864	Administration debt	42,841,477
Taxes (indirect)	62,215,952	Interior	31,441,295
State domain	12,486,645	Native affairs	8,828,627
Monopolies, etc.	12,918,819	Finance	12,672,258
Various	2,322,916	Posts and telegraphs	16,765,865
Receipts d'ordre	81,962,725	Public works	21,770,158
Extraordinary	17,050,000	Agriculture, etc.	4,191,462
Special revenues	1,226,000	Various	5,301,848
		Extraordinary	17,050,000
Total	159,859,921	Total	159,857,985
	(6,394,396.2)		(6,374,816.2)

The budget estimates for 1919 were: Revenues, £8,277,952; and expenditures, £8,268,364. The revenue for the Southern Territories in 1918 was placed at 5,483,466 francs and the expenditure at 5,471,807 francs; and for 1919 the expenditure was given at 7,151,313 francs. The Bank of Algeria with a capital of 20,000,000 francs under a charter extending to the end of 1920 may issue notes, which, however, must not exceed 1,000,000,000 francs according to the law of Oct. 19, 1918.

COMMUNICATIONS. Vessels entered in French and foreign trade in 1917 numbered 1906 with a tonnage of 1,962,833. The merchant marine in January, 1918, comprised 1322 vessels of 17,486 tons. In 1917, 2112 miles of railway were open for traffic and of these 807 were privately owned. Post offices in 1917 numbered 712 and the telegraph comprised 9151 miles of line and 25.147 miles of wire.

GOVERNMENT. Executive power is vested in a

governor-general who has charge of all services except the non-Moslem services of the Treasury, Justice, Public Instruction and Worship. He prepares the budget, which is distinct from that of France, and is voted by the Financial Delegations and the Superior Council. The delegations represent respectively the French colonists, the French taxpayers who are not colonists, and the native Moslems; and the Superior Council consists of elected members and the higher officials. There is also an advisory government council that assists the governor-general. Legislative power is vested in the French Parliament, to which each department sends one senator and two deputies. Governor-general at the beginning of 1919, M. Jonnart, appointed, Jan. 29, 1918.

ALIEN PROPERTY CUSTODIAN. See INSURANCE.

ALLEGHENY COLLEGE. An institution of learning, non-sectarian in policy but under the control of the Methodist Episcopal Church, founded in 1815, at Meadville, Pa. The enrollment for 1919 was 324 men and 194 women. The faculty numbered 31, three additions during 1919. Productive funds amounted to \$846,707, and the income for 1919 was \$185,649. The library contained 34,000 bound and 12,000 unbound volumes. In 1919 a new gymnasium and an addition to the women's dormitory were built at a cost of \$150,000. President, William H. Crawford, LL.D., D.D.

ALLIANCE FRANCAISE, FÉDÉRATION DE L'. An association of clubs, societies, and groups formed for the purpose of encouraging and furthering in the United States and Canada the study and cultivation of the language, literature, art, and history of France. It was organized in 1902 and consists of nearly 200

local branches distributed throughout the territory of the United States and Canada. In 1919, new groups were established in Duluth, Minn., Evansville, Ind., Moline, Ill., Rock Island, Ill., Davenport, Iowa, Princeton, N. J., Spokane, Wash., and at the University of Syracuse, Syracuse, N. Y. An important function of the Federation is to engage lecturers who make tours throughout the country. The official lecturers of the Federation for the year 1919 were Mr. André Fribourg, a writer of note, and Mr. André Allix whose articles on physical and economic geography have attracted wide attention. The organization maintains a circulating library. Among the officers of the Federation may be mentioned the following: Honorary President, Mr. J. J. Jusserand, French Ambassador at Washington; President of the Administrative Council, Mr. J. LeRoy White; Vice-President, (Eastern States) Mr. Alexander T. Mason; General Secretary, *pro tem*, Mr. Felix Weill. Head-

quarters are maintained at 200 Fifth Ave., New York City. In 1919 the general annual meeting was held in New York on April 5th.

ALSACE-LORRAINE. A territory restored to France after the end of the War of the Nations in 1918. From 1871 when it was taken by Germany it constituted an imperial territory which was divided into three districts: Lorraine, Upper Alsace, and Lower Alsace, and governed by a Statthalter appointed and recalled by the emperor, with his seat of government at Strassburg. Laws were made by the emperor with the consent of the Diet which consisted of two Chambers, the first comprising members who were nominated and the second 60 members elected on general direct suffrage. (For events following the armistice, see below.) The area is 5605 square miles with a population in 1910 of 1,874,014, of whom those who spoke German numbered 1,634,260, and French 204,262. No figures of production, population, etc., were available during the war. The distribution of the population by religion according to the census of 1910 was: Catholics, 1,428,343; Protestants, 408,274; Jews, 30,483. For higher education there was the university of Strassburg, and in 1913 18 gymnasias and other institutions for secondary education with 2841 elementary schools and 69 private elementary schools. The acreage under wheat in 1913 was given at 342,695; under rye, 138,632; under potatoes, 226,700 under oats, 282,165; under hay, 485,755; under barley, 122,727. The vineyards in 1917 had an acreage of 62,122 with a yield of 2,672,318 gallons. The cotton manufacture was very extensive. Mineral products in 1913 were placed at 21,136,265 metric tons of iron ore; 3,795,932 tons of coal; 76,672 tons of salt. The persons employed in the mines and quarries in 1913 numbered 38,509. The large cities with their population in 1910 were: Strassburg, 178,891; Mülhausen, 105,488; and Metz, 79,318. It was announced in 1918 that the French were making progress in introducing the French system of education.

RAILWAYS. According to a decree issued by the commissary-general of the French Republic at Strassburg the railway system of Alsace-Lorraine was to have a new organization and was to be operated by an administrative body with headquarters at Strassburg, under the authority of the commissary-general. The administrative body was to consist of a *directeur*, or manager, and a council of 21 members, including representatives of Chambers of Commerce in industrial and agricultural associations in the territories traversed by the railways. M. Lebert, assistant operating manager of the state railways, was appointed *directeur*, and the other principal officers were selected from among high officers on the Est, P.L.M., Orleans and State railways. From 1871 until the end of the war the railways of Alsace-Lorraine were the only "Imperial" railways in the German Empire, the other State railways being owned by the individual states forming component parts of the Empire. The system in Alsace-Lorraine consists in part of lines originally built and owned by the Est railway and ceded to the German Empire under the terms of the Treaty of Versailles and restored to France after the war, and in part of extensions built by Germany since 1871. Germany regarded the Alsace-Lorraine railways chiefly from the standpoint of strategical

lines, without however overlooking their commercial value. Tracks, stations and sidings were laid out and loading and unloading accommodations were provided in accordance with actual and possible military requirements.

GOVERNMENT. By decree of Nov. 26, 1918, the French government took over the administration of the territories until peace should be signed, French troops meanwhile having occupied the country. French officers were placed in charge of affairs and on Mar. 22, 1919, M. Alexandre Millerand was appointed governor-general.

TRANSITION. As was natural there was some friction in passing from the German régime to that of the French. Early in the year criticism of the French administration took on a sharp tone in the press of the former German Reichsland. An Alsatian writer, for example, warned the French administration not to imagine that it would inherit all the affection that the Alsations had cherished for France under the German persecution. There was complaint of the delays on the part of the French government in dealing with the matters submitted to the functionaries of the administration. The people were resigned, they said, to the inevitable lack of employment and to the scarcity of provisions, but they could not understand the failure of the central authorities of Paris to deal with the most pressing problems or their frequent reversals of policy. They complained of the inconsistent rulings of the different bureaus. In this they did not charge against the French any lack of sincerity, but they did accuse the government of a certain inefficiency. They said that while they loved France and hated the Germans, they retained a certain admiration for the German talent of organization. They recognized the German qualities of order and discipline. After all, they said the Germans had brought great prosperity to the country. There had been an extraordinary development in Alsace under German rule, and the scale of living had become luxurious. Taste was lacking to be sure, but comfort and prosperity were widespread. Huge buildings, ugly but commodious, had sprung up everywhere in the large cities. The German régime had been one of the great expenditure and of a spirit of confidence. They discounted the future and undertook extensive public works. Moreover, the Alsations attained a wide liberty in legislation, and had adapted to modern requirements the French codes. To change all this would result in disorder and discontent. A French writer, M. Charles Bonnefon, expressed the situation as follows: "We were here in a house with an elevator, bath rooms, central heating, modern comfort, but where no one could sleep because it was infested by vermin. We have driven out the vermin, let us keep the comfort." With the stroke of a pen the French had abolished the German magistracies which of course was necessary for it was impossible to allow the people to be judged by Germans. Court-martials applied the law under the Code Napoleon, and acquitted themselves fairly well, but the whole country found itself suddenly deprived of civil justice. Much confusion resulted and a vast amount of local business was delayed. The new administration, however, soon attached to it a large number of Alsatian lawyers. The Superior Court took its oath on February 3d. Nevertheless there was a lack of men for the important positions, and the func-

tionaries were overworked. The nominations of officials were slow, and the service suffered. The provisional government with its twenty secretaries, although capable, had too much to do. The courts of the region were supplied by French functionaries, some of whom did not know German, and by Alsatian judges who knew the German law and applied it in the French language. From this arrangement it seemed probable that harmony would result in the long run. The officials in Alsace that corresponded to the French justices of the peace had been suspended along with others and this gap had not been filled during the early part of the year. In all matters it was necessary to await the word from Paris for example in regard to questions of transport, indemnities, mails, railways, orders and deliveries of goods, etc. The post office which was admirably efficient before the war, but went to pieces during the war, was still practically inoperative. Letters took nine days to reach Switzerland. In the beginning of the year it was reported that the railways were going fairly well, but that the situation was still difficult. The French were obliged to keep the employees of the German railways, and these men knowing that they were bound to be discharged had no motive for efficiency. Various embarrassments resulted from placing Frenchmen who could not speak German in charge of the stations, and from other changes. The question of teachers was a difficult one. The Alsatian teachers had been formerly in German normal schools, and therefore were regarded with suspicion. The Germans had left nothing undone that could bestow upon them a German mentality and so combat the influence of the priests who remained French. It was said moreover that about 80 per cent did not understand French and did not know anything about French literature or history. All that they knew about France and her people had been derived from hostile sources in the German normal schools. The question was how to replace them until they were assimilated to the French civilization. Eventually they ought to be sent to France, but for the present it was necessary not only to retain them, but to keep along with them some German teachers. In the main the system worked fairly well, but was embarrassed by interference from Paris. For example, the Reichstag during the war voted the sum of 250,000,000 marks to supply the most pressing personal needs of those who had suffered damage from the war, and 50,000,000 of this sum was appropriated to Alsace. Thirty million had been expended in advance and there now remained on deposit 20,000,000 marks. These were found by the French, and the question arose what should be done about them. To expedite matters they applied the German law and distributed the fund for the relief of the inhabitants, but straightway came a dispatch from Paris saying: Apply the French law to damages, but there was no French law and it was necessary therefore to suspend the payments. The unfortunate persons fell back again into their poverty, and those who had loaned money to them on the promise of relief from the government withdrew their loans and even furniture which had been temporarily supplied. Long and complicated proceedings followed while the cases of destitution remained without relief. The above account, published by M. Charles Bonnefon in March, is given in some

detail because it was a fair example of the criticisms on the part of the Alsatians and Lorrainers throughout the year.

THE CURRENCY QUESTION. Great difficulty and much irritation with the French government resulted from the change in currency after the occupation. Under German rule the mark had of course been the monetary unit. Its value during the latter part of the war and after the defeat had sunk to an extremely low point in foreign markets. Alsace-Lorraine no longer was in the economic sphere of Germany, and obviously should be relieved of German currency, which had hardly any value in the French market and the markets of the Allies, which alone were opened to her. The French government accordingly took a step which appeared extraordinarily generous. A decree was issued on Nov. 26, 1918, depriving of legal tender quality all German currency, including bills of the Imperial Bank, the German states, etc. The inhabitants were assured that French money would be exchanged for German, and to show that the measure taken against the mark was simply political and not financial, the decree of November 26 stipulated that German bills should be exchanged at the rate of one franc, 25 centimes per mark. This delighted and surprised the population, for it took no account of the real value and relation of the mark to the franc, even before or during the war. The French treasury was buying the mark at a higher rate than it had sustained in the most prosperous times. Immediately German bank bills flowed in from all parts, and were exchanged at the rate of 100 to 125. This situation, however, did not last long. When it came to bank accounts, credits, coupons, etc., they supposed that the same rule would apply, but soon found out that it did not. When a depositor claimed from the bank 125 francs for the 100 marks that he had deposited, the banker logically replied that having received marks, he was under obligation only to return marks, and that obviously he could not make a payment at this rate until he himself had exchanged his own marks for francs at the same rate. It was then seen that the results of the application of this principle would be extremely complex, and that the policy had been ill-considered and rash. The decree had been issued without consulting bankers or merchants and without reference to actual conditions. There had been an undue confidence in the ability of Germany to pay, and this confidence was not shared by the Allies of France. Indeed the phrase, "Germany will pay," had become so frequent as to cause ridicule in France itself. The main point before the government was how to extricate itself from this difficulty without forfeiting the confidence of the Alsatians and Lorrainers. It was argued by them that they were entitled to a fair treatment in the circumstances. The government, however, was dilatory in the matter and its attitude was far from satisfactory. A long time was wasted in disputes among the persons concerned in the issuing of the decree, in regard to which of them was to blame, and the subject was discussed in the reports presented to the Chamber of Deputies in February and April, in the course of which it was said that blunders of a serious nature had been made. The Minister of Finance had submitted to the signature of the President of the Council a decree which was not legal.

The under Secretary of State to the President of the Council had let it pass, and the President of the Council had not been informed upon the matter, and signed a decree which he did not know to be illegal. Commissions were appointed, and finally the decree was recalled and a new law voted. Provision in regard to the exchange did not apply to credits, deposits, etc. For example, an Alsatian who at the time of the armistice had paid to his bank a hundred marks for from 60 to 70 francs, might collect 125 francs, but another who before the war had left his deposits in the bank when the rate was 122 or 123 francs per 100 marks, could now collect only from 40 to 50 francs. Complaining of these and other inconsistencies and injustices, the inhabitants and their representatives made frequent efforts to have the matter righted. M. Millerand, who had meanwhile been appointed Commissioner-General of Strassburg, pointed out the gravity of the situation, and the necessity of carrying out the arrangement promised by the decree of November. These efforts, however, had had no result. The public was naturally exasperated, and among all classes the French government was sharply criticized. The labor unions in the country were greatly embarrassed. They possessed funds which could not be applied to the relief of members out of employment, because the treasury of the union obviously could not pay five francs in place of four marks until after having made the exchange of its funds at that rate. The Minister of Finance on Apr. 9, 1919, recognized these difficulties and said that unless the decree signed by the Minister of War was in force, the regained provinces would suffer the greatest hardship. The same difficulty occurred among the agricultural societies, insurance companies, industrial establishments, commercial houses, etc. The situation of the Alsace-Lorraine Cr dit Foncier was still more embarrassing. For 45 years Germans had done their best to Germanize the Alsatians. They had constructed many buildings and made many loans on mortgages. The securities of the Cr dit Foncier were much in demand, because it was eminently a French institution, and securities of the company were widely held, even among the poor. The French government now required the payment of 12 francs, 50 centimes, for 10 marks, and the reimbursement for 625 francs of obligations which had cost 500 marks. This was a logical consequence of the decree, but it meant that the marks paid by the German debtors in carrying out their contracts should also be regained at the same rate, otherwise the company would fail. All the local banks that had succeeded in surviving the German occupation were in the same situation. It seemed an especial hardship, for since they had for so many years maintained the interests of France in the country, their return to France now would threaten the ruin of their stock holders. A meeting of stockholders of a large local bank at Strassburg had unanimously voted a resolution declaring that the capital and resources of their company, created in the course of years of labor, were jeopardized by the new legislation in regard to the mark, and expressed the wish that the government would keep the promise which its representatives had solemnly made of saving the financial establishments from the loss of their means of action, and of protecting stock holders

from loss of their capital and holdings. A suggestion from the Alsatian point of view of the right settlement was as follows: Every Alsatian or Lorrainer owing a debt in marks to which this rate of exchange was applied should find as offset a purchaser in the French treasury of his assets at the same rate. The treasury would thus find itself in possession of a considerable holding in marks. Thus having possession of several billions of marks, it could bring a strong economic pressure to bear upon Germany, and that was really desirable.

LORRAINE. In Lorraine there was the same degree of discontent with the French government as in Alsace, though conditions were not identical. Their loyalty to France was incontestable, but their disappointment was the greater on that account. For a long time a spirit of dissatisfaction had spread among the people, but the newspapers did not give expression to it for there was a general feeling that the grievances might be redressed in time, and that patience during the period of transition was the duty of all. But eventually the discontent became public. A revolutionary agitation began to show itself. Strikes succeeded one another rapidly and on unreasonable grounds. Leaders of Bolsheviks had worked their way into the unions and their programme appeared to be not only anti-French, but anti-social. There seemed to be no adequate protection afforded by the government. Latterly there had been some show of energy. The Governor-General, M. Millerand, was undeniably energetic and able. He visited Metz and investigated the grievances and as a result two German agents were suppressed. The disturbances in Lorraine were attributed in the press to German influence. All disorders in Alsace-Lorraine were plainly to Germany's interest. For a considerable time after the armistice German newspapers continued to be popular in Lorraine, and at Metz alone there were several of them. In fact their number was greater even than under the German rule. Toward the end of the year, however, one of the most important of these newspapers was suspended and its editor arrested. It was at that time pointed out that the Germans who remained in Lorraine were beginning to assume an aggressive attitude, were continuing to speak their own language, and to demand that the natives reply in the same, and were associating themselves with the worst revolutionists, holding meetings, and addressing people in German with a view to inciting them to revolt. For a short time after the armistice, during the enthusiasm of the French victory, the Germans kept in the background. They soon began to show their heads, however, and gradually summed up courage to praise openly the results of the German revolution. Among the conservative classes of Lorraine the question was raised whether the German spirit was to continue in their country under the guise of trade union tyranny. In general the peace-loving and orderly element complained that the effects of victory were countervailed, and that the French government was so lax that the country was a prey to disorder. See **TRADE UNIONS**.

ALUMINUM AND BAUXITE. The domestic production of bauxite, the raw material from which aluminum is obtained, was 569,000 long tons in 1918, as compared with 568,690 long tons for 1917 and 425,100 long tons for 1916.

The total value of the product was \$3,244,000 in 1918, \$3,119,058 in 1917 and \$2,296,400 in 1916. In 1918 Arkansas produced 523,000 tons of the total of a value of \$2,962,000 while the remaining 37,000 tons, valued at \$282,000, came from Georgia, Alabama and Tennessee. Imports of bauxite fell from 7691 long tons in 1917 to 3653 tons in 1918 and the value decreased from \$28,989 to \$14,791. Exports, including bauxite concentrates amounted to only 19,711 tons in 1918 valued at \$1,523,688 as against 21,791 tons in 1917 of a value of \$1,323,926. The United States led the world in the production of bauxite in 1917, the figure of 568,690 tons being greatly in excess of that of the United Kingdom, Italy or India. No statistics for France were available. The value of the primary aluminum produced in the United States in 1918 was \$41,159,000, a decrease from \$45,882,000 in 1917. The value of secondary aluminum produced in 1917 was \$16,711,800. Imports of crude and semi-crude aluminum in 1918 totaled 1,690,683 pounds valued at \$533,156 and manufactures of aluminum amounted to 20,882 pounds, giving a total value of \$554,038. Exports of aluminum included 24,135,234 pounds of crude and semi-crude and 1,890,073 pounds of manufactures the total value being \$10,869,388. See CHEMISTRY, INDUSTRIAL.

AMBER. See MINERALOGY.

AMERICAN ASSOCIATIONS AND SOCIETIES. For organizations whose official titles begin with the word American, see under the important descriptive word of the title.

AMHERST COLLEGE. Founded at Amherst, Mass., in 1821. Students in the fall of 1919 numbered 503, the largest enrollment since 1916. There were 52 members of the faculty, including two teachers from England, R. H. Tawney of Oxford in the department of Economics, and Ernest Barker in that of History. The library contains 120,000 volumes. Productive funds for the year amounted to \$3,800,000; the income was \$300,000. President, Alexander Meiklejohn, Ph.D., LL.D.

AMERICAN FARM BUREAU FEDERATION. See AGRICULTURAL EXTENSION WORK.

AMERICAN GRAND OPERA ASSOCIATION. See MUSIC, Opera.

AMMUNITION. See MILITARY PROGRESS.

ANALYTICAL CHEMISTRY. See CHEMISTRY, GENERAL PROGRESS OF.

ANATOLIA or **ASIA MINOR.** That part of Turkey which consists of a peninsula at the western extremity of Asia with the Black Sea on the north and east, and the Mediterranean on the south, having an area variously estimated at from 196,000 to 199,272 square miles and a population at from 9,000,000 to 10,186,900, with a density of 52 per square mile. The component parts or vilayets with their estimated area and population are as follows: Brussa, area 25,400 square miles, pop., 1,626,800; Smyrna (Aidin), area, 25,801, population, 2,500,000; Konia, area, 30,410, population, 1,069,000; Angora, area, 27,370, population, 932,800; Adana, area, 15,400, population, 422,400; Sivas, area, 23,970, population, 1,057,500; Trebizond, area, 16,671, population, 1,265,000; and Kastamuni, area, 19,570, population, 961,200; and there are also the two sanjaks of Ismid (area, 3130, population, 22,700), and Bigha (area, 2550, population, 129,500). See WAR OF THE NATIONS, and TURKEY.

ANDREYEV, or ANDREYEV, LEONID NIKOLAEVITCH. Celebrated Russian writer of the new school, died September 12. He was born at Orel in 1871, and after studying law at the universities of Moscow and Saint Petersburg, and practising for a short time, he became a police court reporter on one of the Moscow newspapers. His writings had little success until Gorki discovered him, and his early life was so full of hardship that at one time he attempted suicide. His short stories, written in rapid succession, attracted attention by their singular quality, and after the publication of his first collection in 1901, he was regarded as a new star in Russian literature. This collection in a short time sold 250,000 copies. He continued to write short stories throughout his life, and never succeeded in achieving a real novel. He has been placed by readers outside of Russia in the same class with Maxime Gorki, whom, however, he did not equal or even approach in respect to form. He was eccentric, mystical, and apparently unable to create real characters, though possessed of unusual analytical power and a brilliant style. His works seem to be animated by a spirit of fatalism, and they abound in tragic circumstances. After the revolution, unlike Gorki, he was bitterly opposed to the Bolsheviks and just before his death had addressed an appeal to humanity against their savage conduct, saying that Russia was not in revolution, but in a state of chaos. His writings include the following: *The Wall* (1901), describing the vain efforts of a colony of lepers to break through the wall which surrounds them; *The Red Laughter* (1905), a narrative of the Russo-Japanese War; *The Burglar* (*Current Literature*, May, 1905); *His Excellency the Governor* (*Harper's Weekly*, Feb. 9 to March 2, 1907), the story of an official who betrays the people and is the victim of revolutionary vengeance; *To The Stars* (*Poet Lore*, 1907), a poetic drama; *Savva* (1906), the story of an anarchist; *Darkness* (1907); *King Hunger* (1908); *Lazarus* (*Current Literature*, May, 1907), a bold version of the Bible story; *The Life of Man* (*Oxford and Cambridge Review*, 1908), a mystery play; *The Seven Who Were Hanged* (1909), dealing with capital punishment; *Judas Iscariot and the Others* (1910); *A Dilemma* (1910); *Anathema* (1910), a tragedy in seven scenes; *Silence and Other Stories* (1910), tales of horror; *Life is so Beautiful to the Resurrected* (*Current Literature*, September, 1910); *The Ocean*, a tragic tale characterized by a Russian critic as a "hymn to chaos"; *Love of One's Neighbor* (*The Glebe*, January, 1914), a satire; and *The Sorrows of Belgium* (1914), which praises the self-sacrifice under the German invasion.

ANGELES, FELIPE. A Mexican general in revolt against the Carranza government, was executed at Chihuahua city on November 26th. (See MEXICO, paragraphs on *History*.) He was one of the most distinguished of Mexican generals under the Diaz and Madero régimes, and was known in the United States and elsewhere for his cultivation and enthusiasm for democratic ideals as well as for his ability as a military officer. He was born in the state of Hidalgo, June 30, 1869, of a mixed Creole and Indian family, the son of an officer who had served against Maximilian. He studied at two of the leading French artillery schools and he wrote a military text-book as the result of his work

and observations in France. He was also a graduate of the military school of Chapultepec in Mexico. He was closely attached to Madero who entrusted him with important operations against the rebels under Zapata, which he conducted with marked success. Under Huerta he was for a time kept in prison as he refused to support the new government and take a commission in the Huerta army, but though Huerta killed many of the supporters of Madero, he spared from motives of policy the life of Angeles, who was released on condition that he should go to France. On his return from France he joined the armies of Carranza and Villa, and when the two generals separated he stood by Villa whose chief of staff he became. He was one of Villa's most successful generals and was especially remarkable for his humane spirit and regard for the laws of war. He was highly accomplished and widely traveled. He always expressed admiration for the institutions of the United States.

ANGELICAN CHURCH. See ENGLAND, CHURCH OF.

ANGOLA (or PORTUGUESE WEST AFRICA). A Portuguese colony on the West African coast with a coast line of about 1000 miles, and bounded by French Congo, Belgian Congo, British South Africa, and the former German colony of Southwest Africa. Its boundaries were fixed by the conventions of 1886 and 1891. Estimated area, 484,800 to 490,000 square miles, and estimated population, 4,120,000; capital, Saint Paul de Loanda. Other important towns are Cabinda, Ambriz, Novo Redondo, Benguella, Port Alexander, and Mossamedes. The native population in 1914 was estimated at 2,124,361. The military forces were not large, varying from some 2700 men to 4731, the majority being natives. The trade is chiefly with Portugal and consists for the most part of textile products (the leading import), coffee, rubber, and dried fish. Railway open for traffic, 818 miles. In July, 1918, the Trans-African Railway was purchased by the government. The colony is connected by cable with the telegraph systems of East, West, and South Africa. Angola has been a Portuguese possession since 1575 with a brief interval from 1641 to 1648 when it was in the hands of the Dutch. It is under a governor-general whose seat is at Saint Paul de Loanda, and for administrative purposes it is divided into nine districts.

ANHALT. Before the war a duchy of the German empire, surrounded by the Prussian provinces of Brandenburg and Saxony with an area of 888 square miles and a population in 1910 of 311,128. Capital, Dessau, (56,605); other cities, Bernburg (33,724; Cöthen (23,416); and Zerbst (19,210). The population is mostly Protestant, the Catholics in 1910 numbering only 12,755 and the Jews 1383. The estimated income and expenditure, 1918-19 was £1,056,950, and the public debt on June 30, 1917, was £470,991. Before the war the executive power was vested in a duke, and the legislative in a Diet of 36 members of whom two were appointed by the duke, eight represented the land-owners who paid the highest taxes, two were the highest taxed members of the industrial or mercantile class, and fourteen were representatives of other inhabitants of towns and 10 of country districts. The duke governed through a minister of state. In 1918 the reigning duke was Eduard, son of

the late Duke Frederick of Anhalt, who succeeded his brother on April 21, 1918. During the revolution Anhalt declared itself a republic and led the way in voting for the Constituent Assembly in the new German Republic.

ANIMAL INDUSTRY. See LIVE STOCK and VETERINARY MEDICINE.

ANNAM. A French protectorate forming part of French Indo China (q.v.); was acquired by France under the treaty of 1884. Its area is about 52,100 square miles with a population in 1914 of 5,200,000, including 2117 Europeans. Capital, Hué (60,711); largest town Binh-Dinh (74,400). In the towns along the coast the population is Annamite, and in the hilly tracts it consists of Moï tribes. Agriculture is carried on chiefly in the central portion where irrigation has been introduced and the chief products are rice, corn, and other cereals, various nuts, spices, and tobacco, sugar, coffee, valuable timbers, and medicinal plants. Raw silk is also produced on a considerable scale and one-third of it is exported. There are mines of iron, copper, zinc, and gold worked by the natives. Coal and salt are also obtained. Internal affairs are administered by Annamite officers under the control of the French government. At the head of the government is the King, Khai-Dinh, who came to the throne in 1916 and who is assisted by a Council of Ministers.

ANTARCTIC. See POLAR RESEARCH.

ANTHROPOLOGY. While quantitatively the output of research work has been seriously hampered by abnormal post-bellum conditions, which have likewise interfered with the undertaking of novel enterprises, there are gratifying indications of the recognition accorded to anthropology by outside agencies. Thus, two anthropologists, Professor Dixon of Harvard and Dr. Farabee of the University Museum (Philadelphia), were summoned as experts to the Paris Peace Conference; and America's most eminent Egyptologist, Prof. J. N. Breasted, frankly seeks aid and comfort in anthropological methods of approach (*Journal of the American Oriental Society*, vol. 39, pp. 159-184). The growing demand for anthropological instruction is equally remarkable, especially in the Far West. Thus, the University of California reports the record-breaking number of 440 undergraduate students taking the introductory course in anthropology. It is also encouraging to find that even in war-stricken Belgium an *Association pour l'étude et l'enseignement des sciences anthropologiques* has been called into being at Liège, which has already founded a School of Anthropology (*Ecole libre d'Anthropologie*) and provides for courses in physical anthropology, criminology, ethnography, prehistoric archaeology, sociology, linguistics, and the history of religions. In Germany Dr. Heinrich Cunow, editor of *Vorwärts*, and known for his writings on the social organization of the Australians and the Incas, has been appointed professor extraordinarius of ethnography and sociology at the University of Berlin. At the University of Vienna Dr. Rudolf Pösch has been promoted to a full professorship of anthropology and ethnography.

PHYSICAL ANTHROPOLOGY AND ANCIENT MAN. Despite the difficulties under which all scientific publications have had to labor during the war, the *American Journal of Physical Anthropology*, edited by Dr. A. Hrdlicka, has continued to appear. It pays special attention to the reviewing

of new literature, but also issues original contributions. Among the latter the following essays may be cited: F. Boas, "The Hair Color of the Italians" (pp. 11-14); H. Boas, "Inheritance of Eye-Color in Man" (pp. 15-20); and Dr. B. Bean and W. Baker, "Some Racial Characteristics of the Spleen Weight in Man" (pp. 1-9). In the last-mentioned paper the authors conclude that the spleen of the negro is lighter than that of the white, the average for males being 115 and 140 grams respectively. This journal also publishes a noteworthy essay on the "Origins of the Portuguese" by A. A. Mendes Corrêa (pp. 117-145). According to this author, the Portuguese are distinctly short, having a stature of 164.5 cm., and represent the most dolichocephalic type of Europe, the average skull index being 74.5, with only 8 per cent of the population broad-headed. They belong predominantly to the Mediterranean sub-race, which is purest in the mountains, but Alpine and even Nordic strains occur. From copies of the *Archiv für Anthropologie* for 1918 and 1919 that have at last reached this country it appears that the somatological branch of anthropology has been vigorously cultivated in Germany during the last few years. Rudolf Pösch has described a series of Australian skulls, Margarete Schwoerer publishes a paper on the craniology of the Ceram Islanders, Karl Steiger has devoted special study to the tibia in a district of southern Bavaria, and Bavarian skulls of the Roman period have been measured and classified by Ludwig Pröbstl. O. Walkhoff (*Archiv*, 1919, pp. 12-43) resumes his researches on the phylogenetic development of the chin. M. Pfaundler has written a book on the growth of children (*Körpermassstudien an Kindern*). He takes issue with those who consider low stature as a pathological phenomenon and holds that the excessive growth of children from the wealthier strata marks a biologically inferior status, this hypertrophy being compensated by the arrested development of the bodily functions. An Italian anthropologist, Prof. Fabio Frassetto of Bologna, has produced a three-volume work, *Lezioni di Antropologia*, which supplements, though it hardly supersedes, Martin's *Lehrbuch* as a manual of physical anthropology. The French continue their intensive studies of prehistoric remains; among them may be cited the Abbé H. Breuil's "Les Peintures rupestres de la Péninsule ibérique" (*L'Anthropologie*, XXIX, 1-28). Some noteworthy comparative papers have appeared in the British *Journal of Anatomy*, such as N. Pan's "Observations on the Gastro-Intestinal Tract of the Hindus" (LIII, pp. 259-265) and J. S. B. Stopford's "The Variation in Distribution of the Cutaneous Nerves of the Hand and Digits" (LIII, pp. 14-25). Spanish scholars are taking an active interest in the antiquities of their country, as evidenced by E. Hernández-Pacheco's *La Caverna de la Peña de Candamo*, in which work there is a detailed account of Aurignacian and Magdalenian remains.

THEORETICAL ETHNOLOGY. In a work entitled *The Evolution of the Dragon* but devoted to a variety of other subjects as well, Prof. G. Elliot Smith amplifies the general conceptions of cultural growth set forth in previous publications. Independent development is flouted as an undemonstrated and reckless, if not demonstrably false, speculation, and in its place is reared an elaborate structure of theory, according to which

practically all of civilization originated in Egypt and was thence transmitted directly or second-hand. Thus, masonry, he argues, did not evolve from an instinctive selection of stone as a suitable building material through a discovery that might have occurred again and again in different places but from the unique desire of the ancient Egyptian to make adequate provision for the welfare of the deceased. In this manner he came to cut into the rock and later substituted stone for brick in the creation of chapels. The burial practices of embalming and correlated rituals are even credited with having furnished the basis of animism. This fundamental belief, according to Smith, is not a necessary phase of religious evolution but an artificial construct due to the Egyptian mummifier. In an arid climate where irrigation was indispensable for effective agricultural effort water naturally loomed as a vitalizing instrumentality. Hence it was natural to assume as a quasi-scientific proposition that a libation before the statue of Osiris could animate the effigy and enable the original to resume existence. This notion developed in various ways. Men came to believe that the dead could enter a block of stone, leaving it and returning to it at will. Thus animism sprang into being and was widely disseminated in dissociation from its original context.

While G. Elliot Smith's views have been vigorously challenged in England, some scholars are inclined to a moderate acceptance of his belief in the far-reaching effects of diffusion. Thus, in his presidential address before the Folk-Lore Society (*Folk-Lore*, XXX, 1919, pp. 10-34), Dr. A. C. Haddon briefly summarizes the theoretical views hitherto assumed in the investigation of folk-lore and largely accepts the position which in later years has become more especially identified with the names of Rivers and Elliot Smith. More particularly he applies the principle of dissemination to certain widespread tales concerning the origin of death and shows how the stories of the Perverted Message and of the Cast Skin can be conceived to have traveled over enormous stretches of territory by utilizing our knowledge of established ethnic relations. On the other hand, Haddon still believes that certain social usages, such as cousin marriage and ultimogeniture (Junior-right) may develop independently, and the same may apply to tales of the creation of man from clay.

Very interesting hints on the study of primitive art are embodied in H. K. Haebler's posthumous essay on "Types of Ceramic Art in the Valley of Mexico" (*Amer. Anth.* vol. 21, pp. 61-70). While a general investigation of the pottery in this region establishes the superposition of three distinct layers, that of the Aztec culture overlying the Toltec one, which in turn rests on the archaic horizon, more intensive research is possible for the Aztec sub-type from Culhuacan. In this local centre it appears that the decorative patterns were executed with great haste because the pottery was destined for markets. Accordingly this factory ware bears designs revealing much less regularity than is usual. Indeed, while the ideal pattern in the artist's mind is clear from comparison of specimens, the individual samples are merely approximations to the norm differing from one another exactly as the handwriting of different individuals. Thus, certain sherds may be confidently assigned to the workmanship of one pot-

ter, certain others to another. This fact opens a new vista for the thoroughgoing examination of archaeological specimens from this novel point of view.

In the domain of sociological theory R. H. Lowie has once more taken up arms against the classical view of the priority of maternal descent, his essay on "The Matrilineal Complex" (*Univ. of Cal. Pub.*, vol. 16, pp. 29-45) being a protest against E. S. Hartland's recent defense of that time-honored doctrine. Lowie resolves the complex into a series of elements not regularly associated with one another and accordingly denies that the presence of this or that "symptom" may be taken as a survival of a former matrilineal system. The same author has enunciated a theory of the origin of the clan (sib) under the heading of "Family and Sib" (*American Anthropologist*, vol. 21, pp. 28-40). Assuming with the majority of American investigators that the family is an older unit than the sib, Lowie endeavors to discover the mechanism by which the later grew out of the earlier condition. The sib, he contends, rests on a classification of kindred and any scheme purporting to explain its origin must explain the segregation of certain kindred from others. If the sib unites the kin of only one side, whether maternal or paternal, it is because either the mode of residence or the established division of economic or industrial labor with consequent proprietary titles naturally assembles either the patrilineal or the matrilineal relatives. Thus, where all the horticultural work is done by women and gardens are owned by them, a grandmother is naturally united into a group with her daughters and granddaughters, all of them jointly constituting the core of a sib, to which newborn infants are automatically referred as soon as the unit acquires a definite name.

A valuable summary of recent speculation on primitive religion in all its aspects is offered by A. A. Goldenweiser in a paper on "Magic and Religion" (*Psychological Bulletin*, XVI, pp. 82-90). An introduction to theories on this subject is also supplied by Frederick Schleiter's predominantly critical book on *Religion and Culture*, where special attention is devoted to the doctrine of convergent evolution. Much interesting material on a special phase of religious history is compiled in W. D. Wallis' *Messiahs: Christian and Pagan*, where an attempt is likewise made to strike the balance between the potency of individual initiative and that of the circumambient social environment.

The 1915-16 issue of *Anthropos* that has only recently arrived in this country contains a continuation of the symposium on Totemism undertaken under the auspices of the editor, Father Schmidt (pp. 234-265). There are three articles on this subject: N. W. Thomas, "Totemism in Southern Nigeria"; Fr. Graebner, "Totemismus als kulturgeschichtliches Problem"; and A. A. Goldenweiser, "The Method of Investigating Totemism." Graebner's essay is interesting as another illustration of his scheme of cultural stratification and also in its assertion of the priority of local patrilineal totemism.

Comparative musical studies continue to attract that limited group of students who combine ethnographical interests with a knowledge of the indispensable musical technique. C. R. Moos and A. L. Kroeber have analyzed the "Nabaloi Songs" gathered in the Philippines

(*Univ. Cal. Pub.*, vol. XV, pp. 187-206); and Dr. George Montandon publishes an elaborate monograph on instruments under the caption of "La Généalogie des instruments de musique et les Cycles de civilization" (*Archives suisses d'Anthropologie generale*, III, no. 1, 1919).

The methods by which animals came to be domesticated by man form one of the most fascinating and difficult problems of ethnology. So far as it relates to the reindeer it received much illumination from B. Laufer's researches, which are in part confirmed and in part revised in Gudmund Hatt's "Notes on Reindeer Nomadism" (*Memoirs, Amer. Anthr. Ass.*, VI, no. 2, 1919). This scholar agrees with Laufer in holding that the notions of riding and of milking reindeer originated in the imitation of processes connected with horse and cattle-breeding. However, he regards these phenomena as relatively recent additions to the reindeer culture and connects the older idea of harnessing reindeer to sledges with the corresponding utilization of dogs because of the striking resemblance between the harnesses used on dogs and reindeer. According to Hatt, the first domestication of the reindeer was due to a hunting people thoroughly conversant with the habits of the species. He assumes that the primary motive in tending captured reindeer was to use them as decoys in luring members of wild herds. A symbiotic relationship would develop between the tamed animals and man; in return for their services he would protect them against beasts of prey, the smoke from his camp-fires warded off mosquitoes, and the strange appetite of reindeer for human urine bound them to the hunters' settlements. Hatt admits that reindeer nomadism is comparatively recent in the history of culture and expressly declines to put its origin into the European Stone Age. On the other hand, he does not accept as evidence of great recency the slight degree of domestication, which seems to him inseparable from the migratory nature of the species and the development of its domestication from reindeer hunting.

AMERICA. An extremely radical attempt at linguistic synthesis is essayed in P. Radin's "The Genetic Relationship of the North American Indian Languages" (*Univ. of Cal. Publications*, vol. XIV, pp. 489-502), where all the stocks of North America are reduced to a single family. This result has by no means been accepted by other students and is vigorously assailed by T. Michelson (*American Journal of Philology*, XL, 316-321). Far more conservative than Radin's synthesis is that of R. B. Dixon and A. L. Kroeber in their joint paper on "Linguistic Families of California" (*Univ. of Cal. Pub.*, vol. XVI, pp. 47-118). For several years these investigators have sought to reduce the 22 stocks assumed in Powell's classification, and the present paper offers a final summary of these efforts. The result is that Yuki remains as the one isolated tongue, the remainder of the distinctively Californian languages falling into either the Penutian or the Hokan category. The Penutian stock includes Wintun, Maidu, Yokuts, Miwok, and Costanoan; the Hokan stock, Karok, Chimariko, Shasta, Pomo, Yana, Esselen, Yuman, Chumash, Salinan, and Washo. Following Sapir, Dixon and Kroeber accept Yurok and Wiyot as related to the Algonkian languages so widely diffused east of the Rockies.

Folk-tales continue to be published on a sur-

prising scale. Under the editorship of T. Michelson the American Ethnological Society has issued vol. II of the vast mass of *Ojibwa Tests* collected by the lamented William Jones and in the 32nd Report of the Bureau of American Ethnology J. N. B. Hewitt presents *Seneca Fiction, Legends, and Myths*, garnered partly by himself and in part by the late Jeremiah Curtin. A substantial body of Plains Indian lore is offered by R. H. Lowie under the caption of *Myths and Traditions of the Crow Indians*, while P. E. Goddard has added to his San Carlos Apache material a set of *Myths and Tales from the White Mountain Apache*. French Canadian folk-tales and songs have been brought together through the enthusiasm of M. C. M. Barbeau in a special number of the *Journal of American Folk-Lore* (vol. 32, no. 123). Tho Stith Thomson students owe a long-needed investigation of *European Tales among the North American Indians*, an essay on the migration of folklore.

An interesting synthetic study of a type hitherto neglected is offered in Miss Leona Cope's "Calendars of the Indians north of Mexico" (*Univ. of Cal. Pub.*, vol. XVI, 119-176). She finds that three fundamental principles are in vogue, the astronomical, the descriptive, and the numerical. The method of numbering the months is restricted to the Northwest Coast and neighboring regions to the north and south. Both in the Northwest and Southwest astronomical conceptions appear, with the solstices occupying the pivotal place. In the remainder of the continent purely descriptive designations referring to manifestations of the animate and plant kingdom or other natural phenomena predominate, while no use is made of the solstices or of any intercalary device for bringing the lunar and solar year into accord.

A subject that has elicited an infinitude of discussion has received partial elucidation in Leslie Spier's paper on *The Trenton Argillite Culture*. At Trenton archaeologists have distinguished three strata—the surface of black humus about 6 inches in depth; the yellow sand from 1 to 6 feet deep; and the stratified gravels extending at least to the flood plains of the Delaware. The uppermost layer contains relics of historic Indians; to the yellow sand a rudier culture has been ascribed by previous investigators; while some have interpreted remnants in the lowest stratum as genuinely Palæolithic finds. Spier confines his attention to the intermediate zone. He confirms the older results of Abbott and Volk to the effect that the yellow sand harbors cultural remnants representing a simpler and older stage than that of the historic Indians of the region. The lack of pottery is especially noteworthy, as is the absence of drilled stones. Large stone blades and arrow-heads, pitless hammerstones, rubbing stones and fire-fractured pebbles are the only specimens found. Half of the remains are of argillite, whence the name of the culture, which has so far remained unique, no definite affinities having been discovered elsewhere.

Research in the Southwest continues to be cultivated with assiduity. A. V. Kidder and S. J. Guernsey's *Archæological Explorations in Northeastern Arizona* ranks as possibly the most important contribution of the year. The authors establish a "Basket Maker" culture related to that of Grand Gulch, Utah, and presumably antedating that of the Cliff-dwelling peoples, though

it remains doubtful whether the Basket Makers represent the prototype of the later culture or an independent line of evolution possibly now extinct, possibly persisting in modern Shoshonean tribes, such as the Paiute and Ute. Of the relative simplicity of Basket Maker life there is no doubt. Pottery was either rare or wholly lacking, corn was cultivated in a single variety, beans were not grown at all, the turkey was not domesticated, and there was no loom cloth. The people probably lived in the open during part of the year, erecting temporary shelters, and used caves only in severe weather and without erecting substantial houses in them. Basketry was extremely abundant and of the coiled type but without interlocking stitches. The occurrence of the spear-thrower coupled with the absence of the bow is significant since that device has a peculiar range, embracing Mexico, Florida and Santa Barbara, Cal. Somatological research may lead to a definite identification of the Basket Makers, since the skulls are dolichocephalic and rather markedly scaphoid, the lack of deformation setting them off from the Cliff-dwellers. Trade relationship with California is suggested by the presence of abalone shell. On the whole Kidder and Guernsey incline to the theory that the Basket Makers represent the first step in the evolution of a full-fledged Pueblo civilization, the Slab-house culture being of an intermediate stage.

A simple Southwestern culture is also revealed by W. Hough's "Exploration of a Pit House Village at Luna, New Mexico" (*Proc. U. S. National Mus.*, vol. 55, pp. 409-431). Though presumably maize-growers, the Pit House people differ from the typical Pueblo Indians in lacking axes, hoes, digging-stones, large chipped objects, pipes and pottery figurines. There is a strange absence of burials, possibly suggesting that cremation or open-air exposure was practiced. The houses themselves were semi-subterranean, projecting about 3 feet above ground; the sides were presumably wattle and daub or earth; the ground plan was circular; and the roof was supported on eight poles. The Indians seem to have walked up the roof and descended through a hatchway by a notched ladder. A village would be constituted of a series of such circular mounds, with a sprinkling of rectangular open-air sheds and a marginal palisaded dance circle.

Another noteworthy monograph dealing with the archæology of this region is E. H. Morris's *The Aztec Ruin*. It is devoted to the principal member of a large group of prehistoric ruins in northwesternmost New Mexico, which Morris affiliates with the famous site of Pueblo Bonito, where a similar style of architecture occurs. A study of ceramics leads to the establishment of three distinct periods, and by synthesizing his results with those of Kidder and Nelson the author arrives at an interesting chronological theory. According to this, the basis of Pueblo culture is to be sought in the canyons north of the San Juan River and to have thence spread after a considerable lapse of time into the Rio Grande Valley since the earliest earthenware of that region is clearly related to the latest pottery of the Aztec area.

In the *Contributions from the Museum of the American Indian* (vol. V, no. 2) E. H. Davis publishes an account of "The Diegueño Ceremony of the Death Images," the first report based on

personal observation of this important South Californian ritual. In this ceremony an effigy of the dead is prepared and finally cremated after much chanting and dancing. The expense of the festival, which is enormous, devolves on the family of the deceased, who must compensate the director of the singing and dancing, the men who perform with the image, and the fire-tender. Nowadays they are also required to furnish coins to be thrown in handfuls among the spectators. Another Californian solemnity belonging to the central parts of the State is described in S. A. Barrett's "The Wintun Hesi Ceremony" (*Univ. Cal. Pub.*, vol. 14, pp. 437-488). The Hesi lasts four days and nights. Its main object is to insure plentiful harvests of wild fruits and seeds and to promote the general prosperity of the people. In the same volume (pp. 221-436) L. L. Loud publishes a substantial monograph on the "Ethnogeography and Archaeology of the Wiyot Territory." Excavation in this region demonstrates that the older inhabitants cremated corpses while at a later period this method gave way to burial in a straight position. In material culture the ancient occupants of the area belong with the recent natives of the Klamath River region. The peculiar implements called slave-killers even suggest relations farther north extending as far as Puget Sound.

In the East work has been preponderantly archaeological. One of the most famous of curiosities is redescribed and interpreted in C. C. Willoughby's "The Serpent Mound of Adams County, Ohio" (*American Anthropologist*, vol. 21, pp. 153-163). "Mountain Haunts of the Coastal Algonquian" (*ibid.*, pp. 139-152) are reported by Max Schrabisch. Under the auspices of the Museum of the American Indian G. G. Heye figures and describes "Certain Mounds in Heywood County, North Carolina" (*Contrib., Mus. Amer. Indian*, vol. V, no. 3), while an intensive "Exploration of Aboriginal Sites at Throgs Neck and Clasons Point, New York City" is recorded by A. Skinner (*ibid.*, no. 4). Skinner argues that at Clasons Point there is evidence of Iroquois influence, which is attested by the abundance of excellent bone and antler work; while at Throgs Neck an upper stratum of comparable type rests on a layer of archaic Algonkian specimens devoid of Iroquois pottery forms.

Speck has described *The Functions of Wampum among the Eastern Algonkian*. He finds that presumably the earliest use of wampum was for ornamentation, and this, though shared by the Iroquois, probably originated in Algonkian tribes. On the other hand, the more serious functions of the beads in association with death messages, peace and war negotiations, and as payment for homicide developed among the Iroquois and were thence transmitted to the Wabanaki. However, the utilization of wampum in proposals of marriage is a local Wabanaki product, probably stimulated by the ceremonial use of the substance copied from the Iroquois.

South American scholars have not neglected their opportunities to study aboriginal life. The veteran Argentinian investigator, Dr. Samuel A. Lafone Quevedo, stimulated by Rivers's kinship studies has issued a paper on "Los Términos de Parentesco en la Organización social Sud-Americana," dealing with the Guaira region (*Revista de la Universidad de Buenos Aires*, XXXVII, 5 et seq.) and sums up his views of South American native psychology in a general

paper on "Rasgos psicológicos de Indios Sud-americanos" (*Revista del Museo de la Plata*, XXIV, part 2, pp. 63-81). The origin of the Bola and the Lasso is discussed by Dr. M. Leguizamón (*Revista de la Universidad de Buenos Aires*, XLI, 206 et seq.).

In Part I of a *Handbook of Aboriginal American Antiquities* (Bulletin 60, Bureau of American Ethnology), Prof. Wm. H. Holmes discusses the processes of stone-working employed by the North and South American aborigines with a profusion of explanatory illustrations and also sums up the most general results of his life-long researches. He re-affirms the view that the New World has not been settled at a period of remote antiquity. The geological evidence hitherto adduced does not warrant belief in a Pleistocene, let alone Tertiary occupancy of the continent, which was presumably not reached until after the final retreat of the glacial ice from middle North America. Archaeologically, relics of Palæolithic shape cannot be accepted as chronologically separable from those of Neolithic craftsmanship and are merely incomplete tools rejected owing to some imperfection. Man, then, must be assumed to have reached America from without and at the Neolithic cultural level, presumably by way of Bering Strait. Subsequent cultural influences from the Old World are conceivable but cannot be at present regarded as proved, and at all events they have not been far-reaching enough to prevent the natives of the Western Hemisphere from representing a homogeneous whole as set over against the rest of the globe.

OTHER CONTINENTS. Under the heading of *Sino-Iranian* B. Laufer presents an exhaustive treatise on the Iranian stratum in the civilization of China, more particularly as regards the transmission of cultivated plants. This process commenced in the latter part of the second century B.C., when alfalfa and the grape-vine were introduced, and there followed a borrowing of Iranian and Central Asiatic plants until the fourteenth century. Laufer's monograph is important for its methodological no less than for its concrete historical results. It proves that merely botanical considerations are inadequate for determining the history of a cultivated species. Thus, wild vines occur in China, but viticulture did not originate there; indeed, it developed as late as 640 A.D. under the influence of a Turkish tribe of Turkistan. Similarly, the walnut is indigenous to China, as well as to the Mediterranean region, but Iran was the home of the cultivated varieties, which spread thence to Greece, India, Central Asia, and China. Laufer further discusses the features of civilization for which the Iranians were indebted to the Chinese, such as silk, the peach and apricot, paper and paper money, so that his volume is really a contribution to the history and spread of culture generally.

"Some Aspects of Nayar Life" (*Journ. Royal Anth. Inst.*, XLVIII, pp. 254-293) are illuminated by K. M. Panikkar. The Nayar, whose territory stretches from Gokarnam to Cape Comorin along the Arabian Sea, differ from many other Indian peoples in having a village organization in which the rights of individual property are fully recognized. The family is organized matrilineally. Contrary to earlier information that ascribed a particular form of polyandry to this tribe, the Nayar do not practice this form

of marriage but merely grant certain social privileges to the husband's brothers. As to Rivers's theory of a close relationship between the Nayar and the Toda, Panikkar maintains that the connection is solely that of neighboring tribes.

Under the auspices of the Imperial University of Tokyo, R. Torii has published a valuable monograph on "Les Aïnou des Îles Kouriles" (*Journal, College of Science*, XLII). Unlike their brethren in Yezo and Saghalin, the Aïnou of the Kuril Islands have been almost wholly neglected and Torii was obliged to study a miserable remnant of 57 individuals rapidly approaching extinction. They show interesting features in common with the northeastern Siberians, such as semi-subterranean winter houses and the use of wooden masks, which represent cannibalistic spirits. The Bear festival so prominent among the Aïnou of Japan is lacking in the north and accordingly appears to be of Gilyak origin. Of the industrial activities of the natives the former manufacture of pottery is noteworthy.

Tallgrén and other European scholars have advanced our knowledge of Siberian archæology and history, and their most general results have been rendered accessible to English readers by Miss M. A. Czaplicka's book on *The Turks of Central Asia* and B. Laufer's critical comments (*American Anthropologist*, XXI, 78 et seq., 198 et seq.). It seems clear now that the people of the Bronze and Iron Ages of southern Siberia were of Turkic stock. The ancient home of this family must be sought in what is now southern Mongolia, where its members dwelt until the second century B.C. On the other hand, Turkistan was originally peopled by Iranians and other nations of Indo-European speech, who were only secondarily swamped by Turkic invaders. These undoubtedly were profoundly affected by Iranian cultural influences. It is important that in the Bronze Age burial mounds of South Siberia series of long skulls with an average index of 83.2 and 74.6 have been unearthed since all the recent occupants of this region are markedly brachycephalic, the majority ranging from 81 to 87 approximately. This suggests that the former inhabitants represented a racial type distinct from that of their successors.

In a paper on *Kinship in the Philippines* A. L. Kroeber reconstructs the ancient kinship nomenclature of the Filipino peoples. He finds that it is based primarily on the differentiation of generations and in general accords with the social scheme characteristic of the Islanders. Thus, the equality of the sexes is reflected in the paucity of sex-limited terms of relationship. Again the accentuation of consanguinity goes hand in hand with a tendency to merge lineal and collateral kindred. Linguistic factors are not to be ignored but they have only superficially modified the aboriginal systems. In a more ambitious essay on *The History of Philippine Civilization as reflected in Religious Nomenclature* the same author draws a distinction between the Igorot peoples of northern Luzon and all other Filipinos, the unique position of the former being partly corroborated by their racial diversity. It is remarkable, however, that the several Igorot tribes have undergone much diversification among themselves. Nevertheless, both Igorot and non-Igorot populations must be recognized as sharers in the same fundamentals of culture, the precise history of whose variations is one of extraordinary intricacy. Kroeber's results are most in-

teresting as regards the character and extent of Hindu influence. He does not incline to the view that natives of India themselves carried culture to the Islands but rather that the Filipinos absorbed the higher constituents of their civilization second-hand from Hinduized Malaysians. As regards religion, Hinduism was not transmitted as a unified system but merely in odd elements, which presumably entered the archipelago by various routes and were adopted more or less uniformly outside the Igorot region. Kroeber insists that the Filipino problem cannot be solved as such but only as part of the greater Malaysian puzzle, a conclusion he applies not merely to ritual and belief, but also to the spread of metallurgy, rice cultivation and other traits.

In the *Journal of the Polynesian Society* a number of worth-while articles on relatively little-known Oceanian groups are issued. Among the papers of the year may be cited S. H. Ray's "Polynesian Linguistics," including a sketch of the Santa Cruz dialect, and Rev. P. H. Audran's "Traditions and Notes on the Paumotu Islands." The first attempt at a grammar of the Sulka language of New Britain is made in *Anthropos* (1915-16, pp. 75-97) by Brother H. Müller. Valuable information on the Yarlalde and other Southeast Australian tribes is furnished in A. R. Brown's "Notes on the Social Organization of Australian Tribes" (*Journ. Royal Anth. Institute*, XLVIII, pp. 222-253), which follow the pattern of his earlier article on the Kariëra.

A valuable account of the secret societies flourishing among the Kouyou of French Equatorial Africa is furnished by M. A. Poupon (*L'Anthropologie*, XXIX, 53-88, 297-335). There is a Panther organization presided over by the chief, with whom the animal species is considered related, from which women are barred; but the women have a corresponding society of their own, from which men are excluded with equal rigor. Of greater dignity than the rest is the "Ottoté" fraternity, composed solely of affluent men since initiation involves a payment to the amount of two hundred francs. Membership, however, confers important judicial and political prerogatives, as well as instruction in the knowledge most highly prized by the natives. Of the social usages practiced by this people the rule imposing avoidance of a man's mother-in-law and the taboo preventing an adult brother and sister from being together are of comparative significance. A contribution to our knowledge of the magico-religious societies of the Ivory Coast is made by M. Prouteaux (*ibid.*, 37-52).

Though the pursuit of Africanist studies in this country has suffered a grievous loss through the death of Mr. Oric Bates, efforts are made to continue the plan of publication projected by him and a second volume of the *Harvard African Studies: Varia Africana* II has been issued. It embraces a large number of important papers, among them a detailed study of "The Kababish, a Sudan Arab Tribe" by Dr. and Mrs. C. G. Seligman and Prof. A. Van Gennep's "Recherches sur les Poteries peintes de l'Afrique du Nord française." There is also a worth-while account of "Certain Rites of Transition and the Conception of Nau among the Hottentots" by Mrs. A. W. Hoernle.

EXPEDITIONS, MEETINGS, PERSONALIA. Though still suffering from the effects of the war, field-work has in some measure been resumed during the past year. For the Bureau of American

Ethnology Dr. John R. Swanton practically completed his investigation of the social life of the Choctaw and Chickasaw; Mr. F. La Flesche continued work among the Osage; Mr. Gerard Fowke conducted excavations in Miller Cave, Missouri; and linguistic research in Oklahoma and the Southwest was undertaken by Mr. J. P. Harrington. A grant from the same institution enabled Prof. J. E. Pearce of the University of Texas to examine a site in the vicinity of Austin. Under the auspices of the U. S. National Museum Dr. W. Hough resumed his ethnological and archaeological studies in Arizona. The American Museum of Natural History financed a visit by Dr. Clark Wissler to the ruins at Aztec, N. Mex., and to the mound area of Ohio. A Columbia University traveling fellowship provided for Mr. Leslie Spier's continuation of work among the Yuman peoples of Arizona. The Museum of the American Indian, Heye Foundation, supported a number of trips by Mr. Alanson Skinner and others to the vicinity of New York, Pennsylvania, and Wisconsin, while Mr. F. W. Hodge again directed the excavations at Hawikuh, N. Mex. For the University of California Mr. E. W. Gifford resumed his researches on the social life of the aborigines. From England Mr. W. E. Armstrong has started for intensive field-work in southeastern New Guinea; Mr. A. M. Hocart has been appointed archaeological commissioner in Ceylon.

The annual meeting of the American Anthropological Association and American Folk-Lore Society took place in Cambridge, Dec. 29-31, 1919.

Unusually severe has been the toll of death since the beginning of 1918, some of the European losses only coming to the notice of Americans in the belated issues of journals that have only recently come to this country. France has lost Dr. Joseph Deniker, famous for his book on *Les races et les peuples de la Terre*; Dr. Léon Poutrin, the investigator of Pygmy races; Prof. Victor Commont, the noted archaeologist; Emile E. Guimet, the founder of the Guimet Museum; and Paul Sébillot, most distinguished of French folklorists. Austrian scientists mourn the death of Prof. Moritz Hoernes, the well-known archaeologist. In America Dr. Frank Baker, a pioneer student of physical anthropology, has passed away.

ANTIGUA. See **LEEWARD ISLANDS.**

ANTI-SALOON LEAGUE OF AMERICA.

A national federation of organizations whose object is the extermination of the beverage liquor traffic, founded in 1895 by the coalition of the Anti-Saloon leagues of five States. In 1919 it had 50 subsidiary State leagues and was working in coöperation with more than 40 other national temperance leagues. The League had a force of more than a thousand workers and officers. It has been very active in the enactment of national prohibition in this country, and is not slackening its campaign until it is sure that prohibition has come to stay. It is claimed that the "wet" interests are misrepresenting the various dry laws to the people in the hope of a repeal, and the League has taken up the task of explaining the provisions of the Legislature, and showing the people that the country is far better under national prohibition than it was before. Statistics have been brought forth showing a great decrease in crime since prohibition, and a general improvement of the condition of

the lower classes. The officers of the League emphatically deny, however, that they intend to launch any anti-tobacco campaign, and claim that such a report was circulated by its opponents to create public sentiment against the League. At a conference in Chicago on September 17th-18th, the officers of the League together with the officers of the State organizations, decided that a fund of fifty million dollars should be raised during the next five years. Twenty-five million of this was to be used on direct State, national, and world-wide work, while another 25 million was to be used in the Americanization of foreigners and in the world-wide prohibition fight in foreign countries, through the coöperation of the World League Against Alcoholism. It was the unanimous decision that the next step for the League was in the direction of education, especially with foreigners and foreign-born Americans. Much work was anticipated in foreign countries during the year 1920, there being already at the close of 1918 17 officials of the League abroad working with the temperance forces in various countries, and more expecting to be sent shortly. Prohibition of the manufacture and sale of intoxicating liquors had been adopted by the Dominion of Canada, Newfoundland, Greenland, Iceland, the Faroe Islands, Russia, Finland, and Rumania for the period of the war. Partial prohibition had been effected in 10 other countries and forces were working to make this complete.

The officers of the League for 1919 were Bishop Luther B. Wilson, president; Hon. S. E. Nicholson, secretary; Forest Copeland, treasurer; Rev. P. A. Baker, general superintendent; Ernest H. Cherrington, general manager of publishing interests. *The American Issue* is the official organ of the League, and there are 29 subsidiary and State organs. The publishing house and executive offices are in Westerville, Ohio, where three tons of literature are turned out daily except Sunday. The legislative committee has its headquarters in the Bliss Building, Washington, D. C.

ANTONIA, MARIA. See **MUSIC, Artists, Instrumentalists.**

APPENDICITIS. The intimate nature of this affection appears to be as obscure as ever; that is to say, there is no theory which is acceptable to all authorities. Until recently the belief has gained converts that the disease results in the main from the entrance into the blood of germs of low virulence which possess a selective affinity for the appendix as a place for localization and development; the appendix being one of a large number of organs selected by various strains of bacteria for this purpose. It can readily be shown by experiment on animals that special strains select their own breeding places in the body. Nevertheless this plausible view does not conform to the experience of individual pathologists. Thus Sandelin, a Finnish physician, as a result of a large experience in the study of diseased appendixes, regards the essential or determining cause of appendicitis as anatomical and mechanical. An infection is of course required before the disease can develop, but it will develop only in organs as a consequence of some congenital or acquired malformation, which favors stagnation in the organ as a result of partial or complete obstruction. The offending microorganisms are those which chance to be present in the organ and which have their virulence enhanced by retention in the cul-de-sac.

which we call the appendix. Almost at the same time a well known French pathologist has come to conclusions not entirely inharmonious with the preceding. He has satisfied himself that acute appendicitis does not arise by extension from other organs but *de novo* in the appendix itself. Infection could not occur unless some causal factor is present to cause slight loss of substance in the lining of the canal. For years he has been developing a technic to demonstrate the presence in the organ of the ova of the various forms of intestinal worms and as the work progresses he is finding them in a constantly increasing per cent. The presence of the ova by causing slight microscopic wounds of the epithelium, makes it possible for the local bacteria to infect the organ.

AQUEDUCTS. In order to provide an additional daily supply of not less than 500,000,000 gallons for the city of New York in connection with the original Catskill Aqueduct project, an 18 mile tunnel in rock, and a dam 160 feet high, with both masonry and earth sections, were under construction in 1919 at an estimated cost of some \$22,000,000. This Schoharie development involves the construction of the Gilboa Dam, forming a diversion reservoir of 20,000,000,000 gallons capacity, from which the flow will be through the 18 mile Shandaken Tunnel into Esopus Creek, and thence along the original stream bed into the Ashokan Reservoir. The Gilboa dam is discussed elsewhere in the YEAR BOOK under DAMS. The Shandaken tunnel was designed for a maximum capacity of 600,000,000 gallons a day, to be operated intermittently and at varying rates, depending upon the conditions of stream flow and storage. The tunnel has a maximum internal height of 12 feet and internal breadth of 10 feet three inches. The construction was to require about 5.7 cubic yards of excavation per linear foot of tunnel. During the year 1919 the sinking of seven intermediate shafts, concrete lined, 14 feet diameter, was accomplished. The aggregate depth of these shafts is 3238 feet, with a maximum depth of a single shaft of 630 feet. The distance between shafts varies from a minimum of 1.3 miles to a maximum of 2.7 miles.

COLUMBUS, OHIO, PROJECT. On Nov. 4, 1919, the city of Columbus, Ohio, voted to authorize the issue of \$3,000,000 water bonds in order to increase the present storage capacity of the Scioto River so as to provide 55,000,000 gallons daily and to enlarge the purification and pumping works. The plan involved the raising the height of the Scioto River dam six feet, and the construction of a masonry river dam 67 feet high from the river bed to the spillway, located two miles north of Dublin, in order to provide 5,833,000,000 gallons storage. The cost of the raising of the old dam would be \$123,200, and the proposed Dublin dam would cost \$1,250,700 and the Dublin reservoir \$635,000. The various other improvements in connection with the water softening and filtration works, the pumping equipment and the raising of the intake dam, with the reinforcement of the distribution system, would bring the total expense to nearly \$3,000,000.

JERSEY CITY AQUEDUCT. In the aqueduct furnishing the water supply for Jersey City from the Boonton Reservoir, a distance of some 20-odd miles, both the Passaic and Hackensack Rivers are crossed by the conduit. During the year

1919 a 452-foot inverted siphon of six foot steel pipe encased in three inches of wire reinforced concrete was launched and lowered into position in 26 feet of water at the Passaic River crossing. The pipe used was of special design and was erected on the shore and moved to its position in the trench without cracking the concrete casing during the operation. In the original crossing of the Passaic and Hackensack Rivers, the pipe was erected on the shore and dragged into the water by means of a hoisting engine on the opposite bank. The pipe was made of six-foot riveted steel 11/16 inch in thickness, with pre-cast concrete rings, which were slipped over as the riveted connections were made, the clearance space between the rings and the steel pipe being grouted with Portland cement grout. The covering not only protected the pipe, but also gave sufficient weight to keep the pipe from floating when pumped out. In the construction undertaken in 1919 to duplicate the portions of the original concrete, another pipe of 72 inches inside diameter was laid at the river crossings on a line parallel to the original. Instead of using pre-cast concrete rings, this later pipe was covered with concrete by the use of a cement gun, and the entire section was built on shore and launched in one piece. This pipe was composed of ¾-inch steel plates riveted into sections at the shop and erected at the site, where it was covered with a heavy wire mesh and concreted so as to secure the three inch layer with lugs to support pre-cast concrete weights. This feature later was abandoned, and cast iron blocks were to be slung over the pipe at 16-foot intervals, each block weighing 2¼ tons, so that the total weight suspended at each point would be 4½ tons. The new section under construction consisted of a level portion in the bend of the river and goosenecks at each shore end. The bed of the river was excavated for the reception of the pipe, and a large trench was dug upon the shore for the shore section of the pipe line down to the water's edge. For the shore launching ways a narrow gauge track was laid in the bottom of the trench, upon which ran small steel cars at intervals of 20 feet, on which the steel pipe was blocked up and securely wedged as it was erected. For the portion crossing the river a double line of 30-inch gauge light railroad track was built on timber trestles with 12-foot clearance between the tracks, paralleling both the shore and the river trenches. Upon these tracks light railway cars were run at 25-foot intervals, and blocked up on these cars were beams upon which rested crabs to raise or lower the pipe as required. The pipe was duly erected and carried forward and then was lowered into its proper position, where it was sunk by the admission of water, and coffer dams were built at each end to connect it with the yard line. The Passaic crossing having been accomplished, a crossing of the Hackensack, which was upwards of 1000 feet in length, was being undertaken by the same contractors.

MONTREAL AQUEDUCT. The head gates and bridge structure for the Montreal Aqueduct enlargement were reaching completion in 1919. This structure made of reinforced concrete involved a bridge carrying the Montreal-Lachine road over the new aqueduct or canal, and carries three Stoney gates, which are mounted between four towers. The headgates admit water from

the St. Lawrence canal into the aqueduct canal, which will afford water supply and power, the canal at this point being about 185 feet in width. The three bridge piers are 65 feet on centres and the gates are 58½ feet long and 18 feet high, giving a clear waterway 57 feet wide and 17 feet high. The bridge carries two sidewalks and an archway, with a provision for a future double line of street railway tracks, and the operating mechanism of the gates is contained in four towers which are connected at their tops by a second or upper bridge, which affords an operating platform. The piers and the cutoff wall are carried to bed rock, from which point towers rise about 90 feet. Each gate weighs about 60 tons and is counter weighted, so that it may be operated by hand.

WINNIPEG AQUEDUCT. A novel and interesting method of back filling a tunnel through holes bored from the surface was carried on successfully in the tunnel of the new Winnipeg Aqueduct where it passes under the Red River. This tunnel is 70 feet below the high part of the ground and 40 feet below the river level, and is a 10 x 10 foot square excavation, in which is placed a 60 inch cast iron pipe carrying the water. The tunnel bore runs through solid limestone rock, the rock roof being about 17 feet in thickness with overlying sills of various natures. While the rock was fairly hard it was badly seamed in places, so that the contract required that after the cast iron lining for the water was in place, the remaining space in the tunnel bore was to be back filled in such manner as to secure an absolute filling of all irregularities and pockets. The use of compressed air in placing the concrete was forbidden, consequently holes were bored from the surface through the roof of the tunnel and lined with six-inch well casing from the surface to the rock. A light trestle was built across the river to carry the concrete across, and the concrete was poured through the pipes into the tunnel proper, the boring being carried on in sections cut off by bulkheads made of concrete.

ARABIA. A large peninsula of southwestern Asia lying to the south of Syria, Mesopotamia, and the Persian Gulf. Its area is estimated at 1,200,000 square miles or, excluding the Syrian desert and the Sinaitic Peninsula about 1,000,000 square miles; and its population is variously estimated, the highest figure being 7,500,000. As was noted in the previous YEAR Book the Arabians shook off the yoke of the Turks in the third year of the war, and in November, 1916, Hussein, the Grand-Sherif of Mecca, was crowned King of the Hejaz (or Hedjaz). Aided by British armies the Arab troops made steady progress in 1917 and during the spring of 1918. Before the termination of the war they had thrown out of action some 40,000 Turkish soldiers. In 1919 the political status of the divisions comprised within the geographical boundaries of Arabia was indeterminate. They included the following: The kingdom of Hejaz; the central Arabian emirate of Nejd and Hasa; the emirate of Jebel Shammar; the principality of Asir; the principality of Yemen; the British protectorate of Aden; the sultanate of Oman; and the sultanate of Kuwait. A large part of the country consists of desert and barren plain and the inhabitants are for the most part nomadic Bedouin tribes where the land is habitable. In the sand belt of the

north and throughout the great southern desert the land does not support human life though at certain seasons it affords grazing grounds; but in central Arabia there are oases of great fertility and along the coast there are fertile districts which are inhabited by settled communities.

HEJAZ. The Kingdom of Hejaz has an area estimated at 96,500 square miles with a population estimated at 300,000, and is the chief state of Arabia, having the two principal cities, Mecca with a population of 80,000, and Medina, with a population of 40,000. It was included within the vilayet of Hejaz in the former Turkish empire and was the chief centre of Turkish influence. Taking advantage of the Hejaz railway the Turks maintained garrisons in the ports and the chief towns of the interior. The vilayet paid an annual subsidy to the Ottoman government, but there was always a spirit of independence in the region and a hatred of the Turkish administration. Even under the Turkish régime the sherif or emir of Mecca as the legitimate keeper of the holy places exercised a great influence throughout the Moslem world. The settlement of political status was one of the questions before the Peace Conference in 1919 and occasioned afterwards some friction between France and England on account of the former's belief that English diplomacy favored the expansion of Arab influence into Asia Minor to the detriment of French interests in Syria. (See WAR OF THE NATIONS, paragraph on *Syrian Question*.) The King of the Hejaz after 1916 was Hussein ibn Ali, whose son Faisal represented the country at the Peace Conference. Early in January, 1919, the King captured Medina and his representative made an official entry into the city on January 13th.

OTHER DIVISIONS. The emirate of Nejd and Hasa comprised the two chief central Arabian principalities and exercised authority over the oases in the neighborhood of Riyadh, the capital. It sprang from the old Wahabite empire founded in 1745. The head of the state in 1919 was Abd el-Aziz, who drove the Turks from Hasa in 1913.

The emirate of Jabel Shammar lies to the north of Nejd from which it was split off about 1850. The capital is the Bedouin city of Hail, and the emir in 1918 was Abd el-Aziz, er-Reshid.

The principality of Asir lies on the western coast between Yemen and Hejaz with its capital at Sabryah, and its ruler in 1919 was Mohammed ibn Ali, el-Idrisi.

The principality of Yemen with its centre at Sana was under a family of Imams, who traced their descent to the prophet's daughter, Fatima. The Imam in 1919 was Yahya Mohammed Hamid ed-Din. For brief mention of the remaining divisions, namely, Aden, Oman, and Koweit, see those respective titles.

RAILWAYS. During the year 1919 the completion of a narrow-gauge railway, approximately 30 miles in length, from Aden, the seaport of Arabia, to Lahej, capital of the Abdali tribe in southwest Arabia was announced. This was originally a military railway and the first eight miles were built in 1915 to bring up supplies for the British forces operating against the Turks in that region. Its utility and commercial possibilities were seen, so that it was completed after the armistice, all work being done by the Royal Engineers. After the completion

of the line to Lahej, its further extension to the Yemen plateau, 200 miles north of Aden, where the world's supply of Mocha coffee is grown was a logical development which was under serious discussion.

ARBITRATION, INTERNATIONAL. See INTERNATIONAL PEACE AND ARBITRATION.

ARBITRATION AND CONCILIATION, INDUSTRIAL. The signing of the armistice was the signal for the breaking out of unprecedented industrial disputes and labor troubles in this country. During the war, such disputes were met and solved by the National War Labor Board (q.v.) or through other government agencies. After the signing of the armistice, these offices were closed one by one, until the solution of industrial disputes was on its original pre-war basis. Labor troubles increased in importance until a series of strikes in major industries (see STRIKES AND LOCKOUTS), necessitated the taking of some action.

The First Industrial Conference called by President Wilson held its first session in Washington on October 6th. The programme, so far as there could be one expressed, was to consider "the fundamental means of bettering the whole relationship of labor and capital," including the discussion of the public's interests in strikes and lock-outs, the question of the closed and open shop, and labor's right of collective bargaining. Three main groups were represented, the employers, the employees, and the public. Among those present were: For the public, Bernard M. Baruch, John D. Rockefeller, Jr., Judge Elbert H. Gary, Dr. Charles W. Eliot, John Spargo, Lillian Wald, and Ida M. Tarbell; for employers, representatives of the Chamber of Commerce, farmers' organizations, and the Investment Bankers' Association of America, and the National Industrial Conference; for employees, representatives of the American Federation of Labor, including Samuel Gompers, Frank Morrison, and Matthew Woll, and representatives of the railroad brotherhoods.

The conference was opened by Secretary Wilson, and Franklin K. Lane, Secretary of the Interior, was chosen as permanent chairman. It was decided that no member of a group might present a subject to the conference, without the consent of his group. Voting was determined by groups, thus making all votes either unanimous or a two-to-one result. A general Committee of Fifteen was selected to pass upon all suggestions before they were submitted to the floor. A number of proposals were made for temporary industrial truces, and offering plans of solution. It soon became apparent that the conference was not in harmony. An absolute deadlock was reached on the subject of collective bargaining. No satisfactory compromise could be reached. Finally, on October 22nd, Mr. Gompers offered a resolution recognizing the right of wage-earners to organize, to bargain collectively, and to be represented by representatives of their own choosing. The public group indorsed the resolution, the labor group was in favor of it, but the employer group voted against it by a small majority. Immediately, the labor group withdrew, and no further action was taken by the conference. Although nothing tangible was a result of this conference, the leaders expressed their opinion that the publicity which it gave to the problem of arbitration and conciliation was most valuable.

A second Industrial Conference was called by President Wilson after the failure of the original conference. The new body was much smaller and more compact, representing the public, only. This conference was convened on December 1st, and presented a tentative report on December 28th. This report advanced a plan for consideration, study, and constructive criticism by all interested individuals or organizations. The conference was then to convene again on Jan. 20, 1920, for the consideration of this criticism.

This second conference refrained from making any statement as to the causes of industrial unrest, but merely offered a tentative plan for preventing or retarding strikes and industrial conflicts by proposing Federal machinery for adjustment of differences between employers and employees. A firm stand was taken against the affiliation of policemen, firemen, or public safety government employees with any organization which authorizes the use of the strike as a weapon. The plan as worked out by the conference, provides for the establishment of a National Industrial Tribunal and Regional Boards of Inquiry and Adjustment. The National Industrial Tribunal was to consist of nine members to be appointed by the President and confirmed by the Senate, with headquarters in Washington, and would be solely an appellate tribunal, considering only disputes referred to it by the Regional Boards. The United States would be divided into regional districts similar to those of the Federal Reserve division, and there would be a Regional Board of Inquiry and Adjustment set up in each district. There would be an appointed Regional chairman. There are also regional panels of employers and employees, classified by industries. In case of dispute each side selects one representative, and the chairman selects two from each panel, making a board of seven members.

The report of the conference was signed by Wm. B. Wilson, chairman; Herbert Hoover, vice-chairman; Martin H. Glynn, Thomas W. Gregory, Richard Hooker, Stanley King, Samuel W. McCall, Henry M. Robinson, Julius Rosenwald, Oscar S. Straus, Henry C. Stuart, F. W. Taussig, William O. Thompson, Henry J. Waters, George W. Wickersham, and Owen D. Young.

CANADA. In April, 1919, a royal commission of eight members, representing the public, employers, and employees, was appointed to investigate and report as to the best means of establishing and maintaining the proper relations between the employers and the hand workers in Canada. This Commission, after an intensive investigation, offered the following recommendations: recognition of the right of workers to organize, recognition of unions, living wage, collective bargaining, extension of education, establishment of joint plant and industrial councils, and the holding of a conference of a more representative nature. Such an Industrial Conference was held September 15 to 20, and made a number of recommendations, but split on the subject of hours of work, and recognition of unions. However, there was an increase in mutual understanding, and the leaders of both sides felt that the conference was successful.

GREAT BRITAIN. Great Britain has been the leading nation in experimenting with different methods of bringing about satisfactory settlement of trade disputes. The government has organized a system of Trade Boards, consisting

of an equal number of employers and workers, and a few appointed members. These Boards have power to fix minimum rates and have general jurisdiction. There has been a most rapid spread of the system outlined in the Whitley Report, a commission appointed for this purpose, which establishes councils within each particular industry, to bring about further co-operation. This scheme consists in the formation of three different bodies,—in the first place, of National Councils, secondly, of District Councils, and thirdly, of Works Committees. By August 1, Joint Industrial Councils were formed in 43 major industries. This plan was applied to Government Civil Service on June 13th.

The method of procedure of the Whitley Councils is determined by the representatives of the organizations of employers and workers in each particular industry, who draft a constitution, stating the form, function, and objects of their council. In the constitution of some councils, it is provided that no strike, lockout or government arbitration shall be allowed to take place until the dispute has been considered by the council.

Although this plan had been so recently adopted that no statistics were available, it had already handled a number of difficult cases with satisfaction. The *Monthly Labor Review* stated that the small experience so far gained seemed to show that a better relationship between the employers and the workers was already resulting.

GERMANY. Before the revolution, the employers in Germany refused to recognize the trade unions as the legitimate representatives of labor, but pressure forced them to reverse their policy. As a result of negotiations in Berlin, 21 of the largest German employers' associations, and the seven trade unions and salaried employees federations, entered into joint agreement of principles to govern future industrial relations. The agreement covers: recognition of unions, denouncement of "yellow" trade unions, reinstatement of soldiers and sailors, joint administration of employment offices, collective bargaining, with establishment of arbitration boards, and the eight-hour day.

The agreement bears the signatures of the largest employers' associations, the Free, Hirsch-Duncker, and Christian Labor Unions, several salaried employees' organizations, and the personal signatures of a number of leading manufacturers and labor leaders.

NORWAY. On April 4th, a law enacted for the period of the war, and recognizing the principle of compulsory arbitration was reenacted to continue until Apr. 1, 1920. Under the law, an award by the Court of Arbitration has the binding effect of a judicial decision. Pending reference to arbitration, there may be no change unless agreed to by both parties. It is illegal to strike in order to determine the application or intent of the award. For infraction of reward, fines are assessed ranging from five crowns (\$1.34) to 25,000 crowns (\$6700).

The Court of Arbitration consists of a chairman and four members. The chairman and two members are appointed by the Crown. The National Federation of Trade Unions and the Norway Employers Association each appoint one other member. The usual court processes are observed by the court, witnesses being summoned and documents called for in the customary man-

ner. If requested by either party, the proceedings may be held behind closed doors.

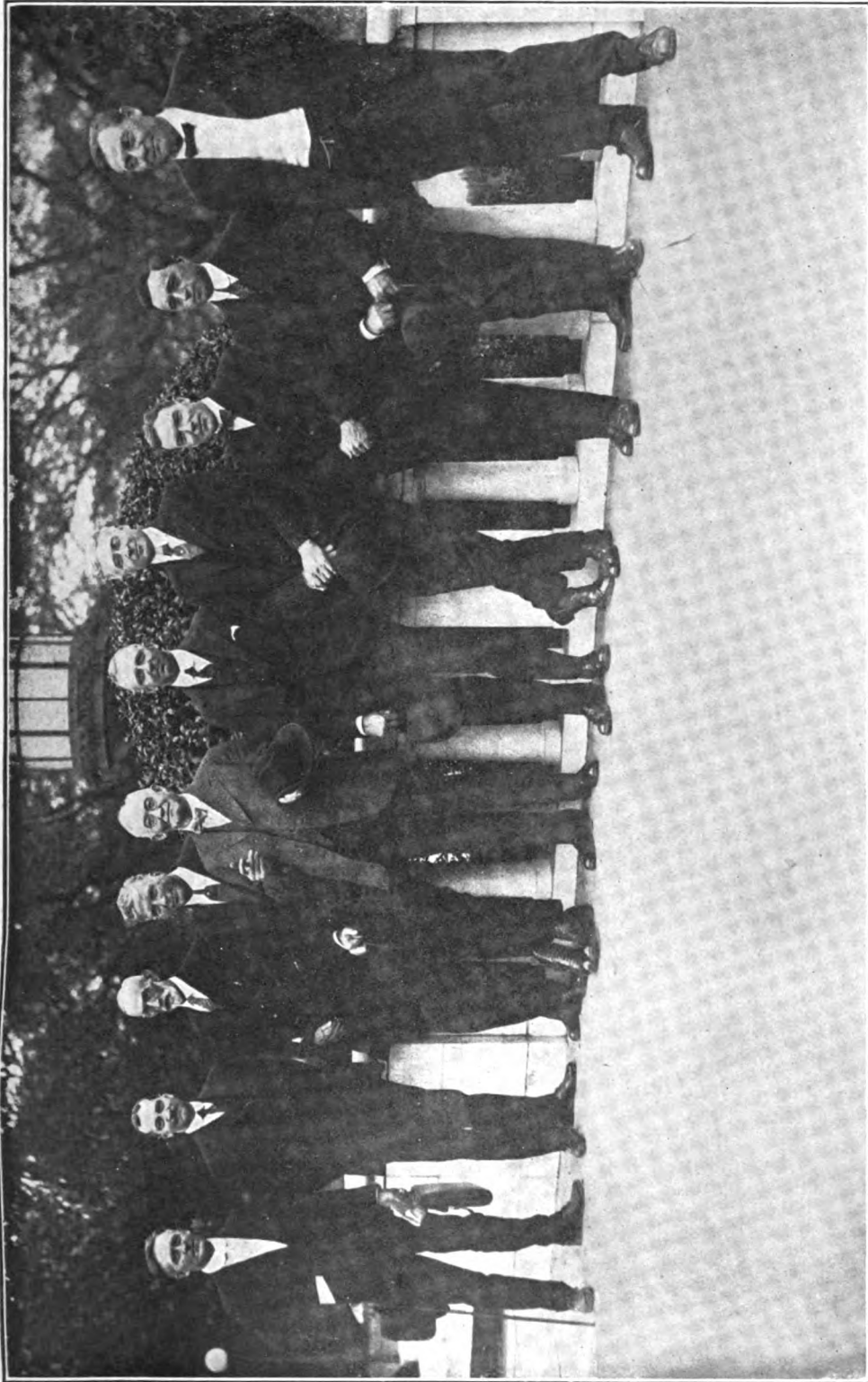
ARCH, JOSEPH. British labor leader, died at Barford about the middle of February. He was born on Nov. 10, 1826, the son of a farm laborer, and was brought up as an ordinary peasant in Warwickshire, having, but little education. He early became a man of influence among his fellow laborers for his intelligent efforts to benefit their conditions, and in the 1870's his reputation had spread throughout the country as an able champion of the cause of labor. The Warwickshire Agricultural Laborers' Union was founded in 1872 and he took part in the founding of the National Agricultural Laborers' Union to improve the general condition of the agricultural laborers throughout the kingdom. This became a great power and he was its real leader. From this time on he exerted a powerful influence in politics and had to be reckoned with at elections. He was a member of Parliament in 1885-86, 1892 and 1895-1900 he was elected to Parliament. He was not a Socialist and his demands had to do merely with the improvement of his class.

ARCHÆOLOGY. In 1919 systematic archaeological investigation had not yet been resumed, and what there was to report was merely the result of accidental discovery. It is interesting, however, to note that during the winter of 1919-20 an expedition from the University of Chicago, under the direction of Professor Breasted, was to spend much time in Egypt, and in the spring was to visit Beirut, Aleppo and then, after passing down the Tigris, to ascend the Euphrates and finally to arrive at Aleppo again. The purpose is to discover the possibilities for later archaeological investigation. In this connection it is worth noticing that aeroplane work during the campaign against the Turks has demonstrated that photographs taken from the air disclose buried ruins much the same as a submerged submarine is revealed under the surface of the water by aerial photographs. If this proves to be the case then the haphazard digging that has been indulged in at times can be given up.

Another indication of the resumption of archaeological investigation is the reopening of the American school in Jerusalem. That there is ample opportunity for exploration in this land is shown by the chance uncovering, by a Turkish shell, of a Mosaic at Ain Duk, near Jericho. The work belongs to the fourth or fifth century B.C., and mentions the name of Binyamin the Pharnas, son of Yoseh, who has apparently been a benefactor of the synagogue to which the Mosaic belongs. Besides this it goes on to urge others to give liberally.

In Crete, with the village of Malia, near Candia, the remains of an ancient palace have been uncovered. It belongs to the Minoan period. The bases of the columns show inscriptions and as well are decorated with ornaments of gold. Not far away were found tombs containing skeletons. There are indications that the finds mark the site of a town.

At Aquileia, which lies 22 miles northwest of Trieste, archæologists in the Italian army of occupation of Istria have found reliefs and Mosaics which apparently date from the early years of the first century of our era. These discoveries, taken in connection with other finds made during the war, show the district is the site of one of the oldest Roman settlements.



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INDUSTRIAL LEADERS IN THE WASHINGTON CONFERENCE CALLED BY PRESIDENT WILSON

From left to right: G. H. Oyster, Harry A. Wheeler, T. C. Atkeson, Thomas L. Chadbourne, William G. Lee, Edwin Farnum Green, Bernard Baruch, John D. Rockefeller, Jr., Mathew Woll, W. D. Mahon

In northern Europe, in the island of Guernsey, a rudely sculptured human figure has been found cut on the under surface of one of the capstones of the central chamber of the dolmen of Déhus, at Paradis in the Vole Parish. The work belongs to the neolithic age. In Scotland, on the estate of Mr. Balfour at East Lothian, a rich find of Roman silver vessels has been made. The objects were found on the hilltop of Trapram Laut about 20 miles east of Edinburgh, and had been crushed apparently with the intention of melting them down. The presence of Christian symbols and illustrations, together with Teutonic workmanship, has led to the suggestion that these vessels were brought by Frisian pirates, or robbers, to Scotland from some monastery which they had plundered on the continent. The discovery of a coin of the Emperor Valens dates the find in the fourth century.

ARCHITECTURE. The year 1919 did not see so extensive a resumption of building as had been anticipated by persons who were not familiar with conditions. During the early part of the year both labor and materials were almost as unavailable as during the war, when the necessary restrictions of conservation and concentration on essential industries brought virtually all building to a standstill. Even at the close of the year building conditions were found to be far from normal, for while materials and labor were both reasonably available, the cost of both was a deterring or prohibitive factor in many projects. While there is not, then, an extensive list of important buildings to present in this review, there are certain architectural notes of special interest to chronicle.

One of the most interesting of these is mention of the appointment by the American Institute of Architects of a "Post-War Committee," the purpose of which was to inquire into the building situation, and into the immediate prospects of the architectural profession. It is recorded that one of the findings of this committee stated that there was a bright future, a greater desire than ever before on the part of a large number of people for buildings of good architectural character, and that the standard of living among the working classes was constantly increasing.

Among other interesting acts of the American Institute of Architects was the proposal for an Inter-Professional Conference, to discuss the founding of a League of Professions (tentative title). Of direct interest to the profession of architecture was a resolution of the Post-War Committee to the effect that the American Institute of Architects would adopt a policy of non-interference with the architect's business methods, leaving any necessary regulation of this to state and local bodies.

The American Institute of Architects as a body showed consistent and constructive interest in the matter of housing problems throughout the period of the war. Other important proposals made by the institute at this time were for a Government Department of Public Works and a Government Bureau of Fine Arts.

A mission from the office des Batiments, of France, visiting this country for the purpose of studying American building methods and materials, suggested to the institute a proposal for a Franco-American Architectural Affiliation.

In addition to the investigations of housing

problems carried on by the American Institute of Architecture, many architectural firms and individuals devoted their entire time to planning housing developments, and the government authorized the U. S. Housing Corporation to exercise as much supervision as possible over all housing developments throughout the country. The sudden and unprecedented expansion of many war industries called for much quick and intelligent work on the part of our architects to meet the resulting housing problems.

Owing to the suspension of all private non-essential building projects during the war, and to the abnormally high prices of labor and material, the close of 1919 saw an almost unrelieved shortage of houses and apartments. In New York alone it has been estimated that the close of 1919 would see a shortage of 35,000 apartments.

During the war the attendance at all the architectural schools was greatly depleted, and many draftsmen from architectural offices throughout the country were also in the army. As a part of the A. E. F. University of Beaune, Côte d'Or, France, a Department of Architecture was organized, and Mr. Lloyd Warren headed another at Bellevue. Thirteen hundred men in all were given instruction in art or architecture, and there were 1700 applicants when the schools were closed. Apart from its interest as an added achievement of the A. E. F. staff, the architectural studies pursued by our men in France offer a valuable suggestion to the architectural schools at home. An important part of the work took the form of "Field Trips," in which the men went out to study actual buildings. There is too much work on paper and not enough familiarity with actual buildings in our architectural schools, and it is indeed a poor locality which would fail to afford some material worthy of study in "Field Trips."

MEMORIAL BUILDINGS. Perhaps the most important immediate architectural by-product of the war is the War Memorial, which is now engaging the interest and attention of many architects and many communities. The *Architectural Record* (issue of September, 1919), published, in addition to an article on the subject, a thorough and extensive bibliography on the subject of War Memorials, compiled by Mr. Frank Weitenkampf, of the New York Public Library.

If we recall the great number of distressingly un-architectural memorials which followed the Civil War, it is to be hoped that due time and deliberation be given to the design of permanent memorials. It is reported that the French, fully aware of the danger of precipitancy, have passed a law forbidding the erection of any War Memorials for a period of 10 years.

One of the most important of the temporary memorials was the triumphal arch on Fifth Ave., at Madison Square, in the design of which the firm of Carrère & Hastings played a considerable part.

There are, broadly speaking, two types of Memorial Buildings:—the "purely monumental, which shall commemorate idealistically in terms of art the qualities of character and mind called forth by the great war, and the more utilitarian memorial in which the idea of service is pre-eminently taking the form of buildings for special uses, or for the uses of social service or civic nature."

It has been found that most of the suggestions for memorials come under one or the other of these two.

Early in January, 1919, the American Federation of Arts issued a circular letter of advice and suggestion directed to all or any who might be contemplating the erection of War Memorials. A second circular was subsequently issued, announcing the formation of a general committee, to act in an advisory capacity to individuals or committees projecting any kind of War Memorials. Personal contact was effected by Regional Sub-Committees, working under instructions from the General Committee. These circulars define the character of memorials, and go on to suggest various types of memorials other than conventional monuments, as follows: community and neighborhood houses, village greens, stained glass windows, medals and tablets.

Another pamphlet upon this same subject* was prepared and issued by the Municipal Art Society of New York City. Numerous illustrations show existing memorials, and the points brought out should prove most helpful to any layman or lay committee interested in the erection of a War Memorial.

* Not only the design of the memorial, but the selection of site concerns the architect and the public, and Mr. H. A. Caparn addressed the American Society of Landscape Architecture to the effect that every effort should be made to discourage the location or encroachment of Memorial Buildings in public parks.

Among the New York suggestions for a project to commemorate the deeds of the A. E. F. was that of a broad Memorial Plaza in front of the Grand Central Terminal.

According to the *Home Sector* (the magazine of the demobilized army), 12 states have announced plans for memorial buildings, of which most will be located near the several State Houses.

The following list gives not only the states which plan the memorials, but an idea also of the forms the several buildings are to assume.

Alabama—A building of Alabama marble will be erected near the State capitol at Montgomery at a cost of not less than \$500,000. It will be used as a State historical building and museum of the records and trophies of the European war.

Delaware—An auditorium and armory will be erected by the State to cost \$500,000.

Illinois—Work has been started on the foundation of the Illinois memorial building, which is to adjoin the State House at Springfield. The State will build a museum also.

Iowa—The State Legislature has voted to erect a Temple of Justice on the capitol grounds at Des Moines as a memorial to soldiers, sailors and marines, the building to cost \$1,000,000.

Minnesota—A majority report by the Memorial Commission of Minnesota favors a memorial on the State university grounds at Minneapolis.

Mississippi—A drive to raise \$500,000 for a memorial building is now under way.

New Jersey—A \$250,000 memorial building, in the form of an auditorium, is to be erected on the State House grounds at Trenton. The building will have a niche for each of the 21 counties of the State, and each niche will contain trophies and data.

North Carolina.—Governor Bickett has named nine members of a memorial commission which

will have charge of the erection of a building at Raleigh.

North Dakota—A \$200,000 memorial building will be erected on the State capitol grounds at Bismarck.

South Carolina—A \$500,000 memorial building in honor of the State's white soldiers will be erected at Columbia on the grounds of the State University, the State furnishing \$100,000 toward the fund. The State is also furnishing \$100,000 toward the erection at Orangeburg of a memorial building for colored soldiers.

South Dakota—The people of the State are subscribing \$583,000 for the erection of a memorial building on the capitol grounds at Pierre.

Tennessee—The Legislature has appropriated \$1,200,000 for the erection of a memorial building in the form of a large auditorium.

The Memorial preference in the West and Middle West seems to be tending toward beautiful city plans. In the case of monuments it is to be hoped that some check upon ill-considered design and too-speedy erection will be possible. England has its "Selection Committee of the War Memorial Exhibition," and France proposes an enforced 10-year wait before any War Memorials be built.

Two typically American buildings are found, also, to be thought of as possible War Memorials: the "Neighborhood Club" and the Municipal Auditorium. An example of the Municipal Auditorium is seen at Springfield, Mass., where it has been for some years a distinct civic asset and a source of legitimate civic pride. A similar building has been completed within the year (though not as a memorial), at Savannah, Ga. (Henrik Wallin, architect.)

The central Y. W. C. A. in Minneapolis, Minn., has erected a large new building (Long & Lamoreuse, architects). It is interestingly handled in a modified Gothic style, with mansard roof, not unlike much work of the French Renaissance. Its mass and general architectural qualities make it a distinctly successful building.

In California the architects are remarkably progressive, and building has been a little more brisk than in the East. Schools, hospitals, institutional buildings, armories and the like are being designed in an essentially modern manner, based on the indigenous mission style. Among a large group of public and semi-public buildings, designed by George B. McDougall, the State Architect, working under the California State Bureau of Architecture, the buildings for the State Normal School seem particularly good. It may be that State direction of public building projects, if intelligently administered, and kept free of politics, produces good results.

Schools in general seem to be following the admirable type successfully developed by W. B. Ittner, of St. Louis, Mo. (and discussed at more length in THE INTERNATIONAL YEAR BOOK of 1916). Two typical recent school buildings: the High School, Butler, Pa. (W. G. Sickles, architect), and the Colfax school, Pittsburgh, Pa. (Edward Stotz, architect), evidence this now seemingly prevalent adherence to type.

In a free rendering of Italian style are the Oberlin College Administration Building (Cass Gilbert, architect), an interesting building with Byzantine detail, and Hilgard Hall, University of California (John Goler Howard, architect). This building is strikingly detailed in a free Classic Renaissance, with unusually well-studied

sgrafito decorations in frieze, pilasters, jambs and soffits.

The new dormitories for Wellesley College—(Coolidge & Carlson, architects), are important additions to the constantly growing quota of good scholastic architecture in this country.

While this summary does not intend to constitute a comprehensive list of important or meritorious buildings projected or completed during the past year, it will endeavor to mention some of the more conspicuous ones. It has not been a prolific year in building.

Among libraries and museums, Chicago shows, perhaps, the most important in the great Field Museum of Natural History (Graham, Anderson, Probst, and White). It is a vast structure, with the conventional pediments, colonnades and end pavilions.

The Waltham Public Library, Waltham, Mass. (J. D. Leland and C. G. Loring, associated architects), is an admirable rendering of the Georgian style, modified and adapted for modern use—a fine general type which might well be followed by the architects of small public buildings in general throughout the East.

At Plainfield, N. J., this Georgian feeling, with a marked blending of the Italian, is the motive for the Municipal Building (Lawrence F. Peck and Wm. L. Bottomley, associated, architects). For the relatively small public building in a suburban or rural community, no other style so effectively combined dignity and general suitability.

Another official building, the postoffice and courthouse, New Haven, Conn. (James Gamble Rogers, architect), is a far more conventional affair, with classic pediment and colonnaded portico, the whole admirably set off by its location at one side of a park.

In the field of church architecture, two important churches in New York City have been completed by Bertram G. Goodhue (formerly of the firm of Cram, Goodhue, & Ferguson). One of these is the Church of St. Vincent Ferrer, the other a new building for St. Bartholomew's Church, in which Mr. Goodhue incorporated the famous portion of the Romanesque entrance façade by Stanford White, removed from the old building.

The Romanesque style is seen again in the Finney Memorial Chapel at Oberlin College (Cass Gilbert, architect). The design of small churches is constantly improving, as is evidenced by the rugged Gothic feeling in the Washington Memorial Chapel at Valley Forge, Pa. (Zant-zinger, Borie, & Medary, architects), and in the delightfully picturesque quality of "The Church in the Garden," at Forest Hills Gardens, L. I. (Grosvenor Atterbury, architect).

Commercial buildings represent a division of architecture in which building has been comparatively brisk, and, in many cases, carried on during the war. This war-time commercial architecture was mostly confined to the factory buildings of those plants which were engaged in industries essential to the war, whether entirely new enterprises or necessary enlargements of existing ones. Such buildings were favored by the federal priority orders on materials, and by reason of the importance and profit of their work, able to pay abnormal prices for labor. Few of these war-time factories, and post-war factories made any pretensions to architectural character, and the writer has noted, among other

factory buildings, but few of relatively imaginative design. Conspicuous among these are the manufacturing building for A. B. Dick Co., Chicago, Ill. (S. N. Crowen, architect), and the Burroughs Adding Machine plant, and the Lozier Motor Co., both in Detroit, Mich. (Albert Kahn, architect). The same architect is also the designer of a distinctly architectural storage warehouse for the Detroit *News*, a building of the utmost severity, but well-handled masses.

An unusually beautiful office building is that of the Walter Baker Co., Ltd., Dorchester, Mass. (George F. Shepard, architect). The style is a beautifully and skillfully modified Georgian.

By far the most important office building, not yet completed, is the new Cunard Building, at Broadway, Morris and Greenwich avenues, New York City (Benjamin Wistar Morris and Carrere & Hastings, architects). This building will be 21 stories high, and will cost approximately \$10,000,000.

Another large office building is the National Association building.

The most important bank building of the year past, and not now completed, is the Federal Reserve Bank (York & Sawyer, architects), a vast Italian Renaissance edifice, with all the refinements characteristic of the bank buildings designed by this firm.

Within a period of six months, during the past year, it is stated that 189 new banks were granted charters, and 24 others authorized to increase their capital—a condition which forecasts considerable activity in this type of building this year.

Among notable banks of the past year are: The Boatmens Bank Building, St. Louis, Mo. (Eames & Young, architects); The Beneficial Savings Fund Building, Philadelphia, Pa. (Horace Trumbauer, architect), and the Trenton Banking Co., Trenton, N. J. (Dennison & Hiron, architects). In the last named are apparent many of the refinements now coming to be an accepted part of the modern bank building—well-studied detail, fine bronze grills and doors, and a ladies' banking room, with Heppelwhite furniture and other decorative accessories of the period, as finely carried out as in a smart hotel.

The most interesting club recently completed is the Cosmopolitan Club, New York City (Edward C. Dean, architect), an unusually picturesque building in both plan and detail. The plan comprises a flagged courtyard, with a cloistered walk, and the entire treatment is one of distinct charm.

Two of the most conspicuous buildings of the past year are the two gigantic New York hotels, the Commodore and the Pennsylvania. The Commodore (Warren & Wetmore, architects), is divided by two light courts into three great towers. The architectural styles of this complex building are too varied and unrelated to admit of discussion in this article. The Pennsylvania (McKim, Mead, & White, architects), faces the great Pennsylvania Railroad terminal, and is a far more dignified building than the Commodore, being carried out in a monumental rendering of the Italian Renaissance style.

Two other considerable hotels, the Hotel Cleveland, Cleveland, Ohio (Graham, Anderson, Probst, & White, architects), and the Hotel Fort Des Moines, Des Moines, Ia. (Proudfoot, Bird, & Rawson, architects), both indicate to what a widespread extent the treatment of the

modern hotel has been influenced by the great New York hotels designed by Warren & Wetmore, of New York.

The most notable railroad station of the past year is the Union Passenger Station at Richmond, Va. (John Russell Pope, architect). It is an essentially dignified building, with a central colonnade feature and a flat dome, much in the manner of the Columbia University Library in New York City.

Mention should be made of several very charmingly designed small country railroad stations by Frank J. Forster, an able country-house architect. If country-house architects were more often engaged to design country railroad stations there would be a happier conformity with the houses nearby, as in the case of Forest Hills Gardens, L. I., where Grosvenor Atterbury, the architect of most of the houses, also designed the station.

In the division of Residential Architecture (see page 47, *THE INTERNATIONAL YEAR BOOK*, 1916), the labor and materials situation has greatly restricted the output for the past three years.

Many houses, of course, have been built—for the most part, houses of the large and expensive class. The cessation of building small houses has resulted in an acute shortage, further aggravated by the corresponding cessation of apartment house building, the latter, as an investment, usually being built on an economy basis.

There is also a type of apartment house in which economy is not an essential factor, a type largely confined to Park Avenue, in New York City, in a section where sumptuous apartment houses are the rule. Building of these expensive apartments again shows considerable activity, which will also begin to be apparent in the construction of the more common type, to relieve the present housing situation.

Indicative, too, of the general resumption of large building projects, which promise interesting material for review in the coming year, mention should be made of the \$20,000,000 group of hotels now commenced at Atlantic City, N. J. The principal hotel included in this project will be another Ritz Carlton hotel, part of the famous group under that name, and will be a building of 15 stories, Georgian in design, with a red brick exterior, and trim in white limestone and terra cotta. This building alone will cost \$4,500,000, and in conjunction with the nearby Hotel Ambassador, with arcades, shops, California bungalows, and gardens, will form part of one of the most extensive hotel developments in this country.

EUROPEAN ARCHITECTURE. From Europe we have yet to receive complete and authoritative advices upon the architectural situation as a whole, though interesting items of news come through from time to time.

In midsummer, 1919, the housing situation was still acute, notwithstanding the wide interest taken in housing developments. Garden cities have long been a part of English domestic policies, but with the cost of building (due to shortage of labor and materials), more than 100 per cent in excess of pre-war cost, building has not been brisk. As an indication of the wide popular interest of the English in this question of housing we find the *Daily Express* promoting a "Workers' Home Competition" for de-

signs and housing plans, with a first prize of £100.

English architects, meanwhile, have taken up many interesting questions relative to the progress of their profession. Among these is the plan for helping draftsmen who have been demobilized. There is also a movement toward organizing the British building industries along more practical and up to date lines.

In both England and Canada there has been, and is extensive government financing of homesteads for returned wounded soldiers. Owing to the shortage of both labor and materials in England there has been considerable controversy over the question of utilizing ready-made wooden houses, to be brought over from Canada and the United States. The promoters in favor are manufacturers of this type of house, both here and in Canada, while former habits and traditions combine to form an active opposition in England.

In a paper on "Reconstruction in the Profession" (English), one architect stresses the importance of educating the public to a better appreciation of architecture, and of the problems and difficulties encountered by the architect of to-day.

The salaried draftsmen (assistants) of the English architect, are, like so many other groups in these unsettled times, disinclined to return to pre-war working conditions. Their pay has been increased by 50 per cent, and they have launched, provisionally, an "Architectural Assistants' Professional Union." It should not be supposed from this, however, that there is any lack of harmony as between the architects and draftsmen, for the Architectural Association of England expresses a desire to help the demobilized draftsman and student who "laid down his T-square for a rifle," and has appointed an "Architectural Demobilization Committee," with the idea of providing all possible aid.

English architectural journals of the early part of the year past seemed in agreement that the much needed and hoped for boom in building would not take place for at least 12 months—from which we are to infer that 1919 has seen the architectural profession in England struggling to "find itself," and devoting considerable thought and effort to the task of effecting various constructive compromises with the new era of new and unaccustomed conditions and demands.

France is rebuilding rapidly. Many of the ruined cities have floated considerable bond issues in this country, and private enterprise and generosity, both here and in France, has given extensive aid.

Long before the cessation of hostilities on Nov. 11, 1918, the French government had put architects at work preparing plans for the immediate reconstruction of the devastated towns and villages. For this purpose calls were sent out for the loan or donation of all sketches, photographs or paintings of the original buildings, so that the architects might re-design as nearly as possible in the picturesque manner of the old buildings. By way of aiding the whole work of reconstruction the Ministry of Liberated Regions prepared a bulletin designed to act as a guide to all who might express philanthropic desires to help the reconstruction work.

French reconstruction work is divided into two classes: (1) The most urgent work (some-



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HOTEL COMMODORE
Near Grand Central Station, New York City

times only for temporary use), and largely performed by 200,000 German prisoners, and (2) the permanent work, which will, of course, proceed far more slowly.

Corresponding with the Architectural Demobilization Committee of the Architectural Association of England, the French established a clearing house for architects and draftsmen, in order to assure them positions as soon as possible. There is, of course, a vast amount of architectural work involved in even a partial restoration of the portions of France which were laid waste by the invading armies.

At Montevideo, Uruguay, there will be held (March 1, 1920), the first Pan-American congress of architects ever called together.

ARCTIC. See POLAR RESEARCH.

ARGENTINA. A republic in southern part of South America on the eastern coast. Capital, Buenos Aires.

POPULATION. There are 14 provinces, 10 territories and one federal district with a total area estimated variously, the commonly accepted one being 1,153,119 square miles. The population according to the census of 1914 was 7,885,237 as compared with 4,405,000 in 1895, and the density per square mile was 6.83. The total population on Jan. 1, 1918, was given at 8,284,266. It was distributed among the provinces and other divisions as follows:

Buenos Aires	1,615,223
<i>Provinces</i>	
Buenos Aires (La Plata)	2,190,876
Santa Fé	947,804
Córdoba	766,875
Entre Ríos (Parana)	444,991
Corrientes	357,028
San Luis	124,387
Santiago del Estero	285,681
Tucumán	854,545
Mendoza	298,225
San Juan	127,775
La Rioja	83,146
Oatamarca	106,500
Salta	147,587
Jujuy	77,990
<i>Territories</i>	
Misiones (Posadas)	57,544
Formosa	20,899
Chaco (Resistencia)	48,599
Pampa Central (General Acha)	111,887
Neuquén (Chos Malal)	30,474
Río Negro (Viedma)	44,968
Chubut (Rawson)	25,888
Santa Cruz (Gallegos)	10,882
Tierra del Fuego (Ushuaia)	2,527
Los Andes (San Antonio de Los Cobres) ...	2,572
Total	8,284,266

On Jan. 1, 1919 the population was estimated at 8,411,000. The capital and largest city is Buenos Aires whose population on June 1, 1914, was 1,575,814; and on Sept. 1, 1918, was estimated at 1,637,155. The second city is Rosario with a population estimated in 1918 of 235,000. Other large cities with recent estimates of population are: Córdoba, 135,000; La Plata, 119,000; Avellaneda, 105,000; Tucumán, 100,000; Santa Fé, 60,000; Mendoza, 62,000; Bahía Blanca, 75,000; Parana, 36,000; Salta, 33,600. From 1857 to 1917 the number of immigrants by sea was over 4,762,067 of whom 2,296,834 were Italians, 1,527,115 Spaniards, 226,481 French, 136,646 Russians, 121,513 Turks and Syrians, 81,290 Austrians, 62,496 Germans, 57,243 Britains, and 33,499 Swiss. In the year

1917 the immigrants numbered 51,665 and the emigrants 83,996. From 1914 down to the end of 1918 there was each year a considerable excess of emigration over immigration, the total immigration during that period was 272,568 and the total emigration, 482,431, or a loss of 209,753.

EDUCATION. Public elementary education is free, and subsidized by provincial and general governments. It is secular and nominally compulsory between the ages of six and 14. In 1917 the primary schools numbered 8453 public, with 1,041,131 pupils and 31,238 teachers; primary private, 1002 with 77,080 pupils and 3483 teachers. Secondary education is controlled by the general government which maintains 37 national colleges with between 11,000 and 12,000 pupils and 1246 teachers; there are also 33 private institutions of the same grade with about 3000 students and 398 teachers. Besides these there are 78 normal schools (13,431 pupils); 41 schools for special instruction (11,559 pupils); and five universities of which three are national, namely, those at Buenos Aires (10,230 students); La Plata (2910 students); and Córdoba (840 students); and two provincial, namely, Santa Fé and Tucumán. The above figures are for 1917. There are national observatories at Córdoba and La Plata, and museums at Buenos Aires and La Plata. The budget for education in 1918 was 29,199,608 paper dollars for primary education, 5,468,744 for secondary; 5,039,756 for technical and commercial education; 9,689,660 for normal schools; 6,811,780 for university education; total, including miscellaneous items, 57,626,228. Educational statistics for the year 1918 were as follows: Secondary, normal and special schools included 36 national colleges, 1 lyceum for girls, 77 normal schools, 7 commercial schools, 4 industrial schools, 3 schools of arts and crafts, 1 grammar school, 1 teachers' institute, 1 school of modern languages, etc., giving a total of 152 with an enrollment of 67,631 and with 5169 teachers. There are also 51 private schools with a registration of 5110.

PRODUCTION. The chief sources of wealth are agriculture and stock-raising. The area for agricultural and pastoral use has been placed at 253,195,000 acres and it has been estimated that about 10,000,000 acres of the cultivable portion require irrigation. The following table shows the acreage of the leading crops and the production in tons for 1917-18, and 1918-19:

	Acreage		Produce (Tons)	
	1917-18	1918-19	1917-18	1918-19
Wheat ..	17,864,412	17,175,000	5,978,000	5,015,000
Oats	3,200,002	3,015,000	1,100,000	640,000
Flax	283,606	3,456,625	568,000	705,000
Maize ...	.....	.....	4,335,000	.....

A message of the president to congress asking that a stock census be taken showed that the livestock on hand in the Argentine Republic was less than in 1914, owing to increased exports of meat-producing animals, which in 1918 rose to 2,977,000 head of cattle and 2,145,000 head of sheep.

COMMERCE. The following account of foreign commerce during the year 1918 is given by the *Bulletin* of the Pan American Union on the basis of official figures: Cash value of foreign com-

merce, 1,307,392,000 pesos gold, distributed as follows: Imports, 480,896,000, and exports, 826,496,000; balance in favor of Argentina, 345,600,000 pesos gold. The figures vary widely from those of previous years. The exports of 1918 exceeded those of any former year, both in bulk and value, surpassing the highest value previously recorded by 244,000,000 pesos gold, since, in 1915 the value of the total export was 582,179,000 pesos gold. However, the quantity of articles imported in 1918 was less than any year of the past 15, representing a sum equal or slightly greater, in proportion to the population, than that recorded 15 or 20 years before and something over one-third that of the year of greatest importations. Indeed, the commercial balance in favor of the Republic was the highest yet attained, exceeding any previous record by 68,900,000, as in 1915, hitherto the highest, the balance totaled only 276,600,000 pesos gold.

The value, in gold pesos, of the import and export trade of Argentina with each country during 1918 (the Argentine gold peso is valued at \$0.9648) was as follows:

Countries	Imports from (Pesos)	Exports to (Pesos)
United Kingdom	125,000,000	305,800,000
United States	169,500,000	165,100,000
France	26,000,000	113,000,000
Brazil	49,400,000	33,300,000
Spain	41,800,000	23,800,000
Italy	20,000,000	40,200,000
Uruguay	4,500,000	15,000,000
Japan	15,200,000	2,800,000
Chile	8,300,000	8,600,000
Paraguay	7,300,000	5,200,000
Sweden	3,300,000	4,400,000
South Africa	1,900,000	4,900,000
Mexico	5,350,000	50,000
Norway	900,000	4,200,000
Peru	4,000,000	300,000
Cuba	3,200,000	300,000
Switzerland	3,200,000	20,000
Other countries and "or- ders"	11,750,000	74,430,000
Total	500,600,000	801,400,000

There was a large increase in the exports to the United Kingdom during last year, compared with 1917, due largely to shipments of wheat under the wheat convention, etc. The export of grain products in tons for 1917 was as follows:

Revenue	Dollars Paper
Ordinary:—	
Import duties	150,050,000
Alcohol	8,000,000
Tobacco	38,700,600
Licenses	4,800,000
Stamped paper	20,000,000
Posts and Telegraphs	16,500,000
Service of debt from various provinces	3,752,564
Perfumery and patent medicines	2,903,875
Land tax	6,500,000
Port dues	14,800,000
Export tax	66,700,000
Alcoholic beverages	8,000,000
Tax on horse races	2,000,000
Sanitary works	5,997,893
Beer tax	3,600,000
Tax on matches	3,400,000
Tax on insurance	1,000,000
Tax on wine	1,500,000
Sale of fiscal land	1,500,000
Miscellaneous	10,712,123
Total ordinary	362,416,455
Special revenue for subsidies, charities, etc., derived from the national lottery	10,799,986
Perfumes tax fund	196,125
Grand total	373,412,566

Wheat, 935,828; flour, 112,465; linseed, 141,308; corn, 893,932; oats, 271,713. In 1918 they were as follows: Wheat, 2,943,313 tons; flour, 97,241 tons; linseed, 391,708 tons; corn, 622,427 tons; oats, 517,038 tons. During the last 20 years the agricultural and stock production of the republic has greatly increased. In the five years from 1899 to 1903 the exports of agricultural and stock products amounted to 878,000,000 Argentine gold pesos, as compared with 1,493,000,000 gold pesos in 1904–1908, 2,074,000,000 gold pesos in 1909–1913, and 2,766,000,000 gold pesos in 1914–1918. The exports during the first five years referred to aggregated 387,000,000 gold pesos of agricultural products and 491,000,000 gold pesos of stock products. These exports during the second five-year period were 884,000,000 gold pesos of agricultural products and 609,000,000 gold pesos of stock products; during the third period they were 1,147,000,000 gold pesos of agricultural products and 927,000,000 gold pesos of stock products; and during the fourth five-year period they rose to 1,160,000,000 gold pesos of agricultural products and 1,606,000,000 gold pesos of stock products. Argentina is one of the largest exporting countries of meat products in the world. In 1917 the exports in tons were as follows: Frozen meats, 410,455; chilled meats, 38,995; preserved meats, 142,153; other meats, 7613; total, 559,216. The total for the first six months of 1918 was 339,463. In recent years there has been a great increase in the exportation of cheese products. From being an importing country in cheese Argentina in 1917 exported 2,728,393 kilos and imported only 312,690 kilos; and during the first three months of 1918 the change was even more marked, namely, exports of cheese, 1,633,362 and imports, 8007. The butter exports rose from 3,784,396 in 1913, to 9,830,154 in 1917, and in 1918 from the ports of Buenos Aires and La Plata alone, 12,159,823.

FINANCE. The unit of currency is the peso or dollar (gold) with a value of five francs or 96.475 cts., but the money in circulation is chiefly paper pesos which have a value fixed by the conversion law of 1899 at 44 per cent of the gold peso or 42.449 cts. in American money. The totals of the budget for 1918 are as follows:

Expenditure	Dollars Paper
Ordinary:—	
Congress	4,598,156
Ministry of Interior	46,764,814
Ministry of Foreign Affairs and Worship	4,258,759
Ministry of Treasury	19,549,262
Ministry of Public Debt	126,445,894
Ministry of Justice and Education	70,531,174
Ministry of Army	29,119,337
Ministry of Navy	22,779,675
Ministry of Agriculture	9,206,520
Ministry of Public Works	10,426,015
Pensions, etc.	16,821,473
Public works	19,395,000
Total ordinary	379,896,079
Subsidies	11,093,401
Grand total	390,989,480

The revised figures for the expense budget of 1918 were as follows: Total, 391,035,571 pesos, currency, made up as follows: Congress, 4,598,156; department of interior, 46,764,812; foreign relations, 4,304,850; treasury, 19,549,262; public debt, 126,445,894; justice, 12,904,946; public instruction, 57,626,228; war, 29,119,338; navy, 22,779,676; agriculture, 9,206,520; public works, 10,426,015; pensions, 16,821,473; public instruction, 19,395,000; subsidies, 11,093,401. The gold store of Argentina during the war was increased about 50 per cent. According to the estimates of the conversion office the amount in 1913 was 294,934,755 pesos, whereas in 1918 it was 436,000,000 pesos.

COMMUNICATIONS. In 1917 the vessels entered at all Argentine ports numbered 44,345 with a tonnage of 16,428,586 and those cleared 44,088 with a tonnage of 16,446,837. The railways open to traffic on Jan. 1, 1918 had a mileage of 21,858 of which 3798 (18 per cent) belonged to the state. The post offices at the beginning of 1918 numbered 3461 and the telegraph lines in 1915 had a mileage of 43,153 of which the national telegraph lines had 23,978.

ARMY AND NAVY. Service is compulsory in the national militia for all citizens from their twentieth to their forty-fifth year, who must pass the first 10 years in the active army or first line, then 10 years in the National Guard and finally five years in the Territorial Guard. The country is divided into five military districts, each of which supplies a division of the first line and also a reserved division. The active strength of each division was placed at 20,000 men. The reserve numbered about 250,000. The navy included the 2 large dreadnoughts *Moreno* and *Rivadavia* of 27,940 tons each; 4 armored cruisers, of 6840 tons each; 2 pre-dreadnoughts of 2336 each; and 2 protected cruisers, of 3500 and 4500 respectively; besides that, several small gunboats and torpedo gunboats, 7 destroyers, 8 torpedo boats and various training miscellaneous craft. The personnel varied from 5000 to 6000 men. The army budget for 1918 was £2,562,502 and the navy budget £2,004,611.

GOVERNMENT. The form of government is that of a federal republic. Executive power is vested in a president for six years by electors from the 14 provinces and he is ineligible for reelection. He is responsible with his ministry for the executive acts. It is required that both president and vice-president shall be Argentines by birth and Roman Catholics in religion. The cabinet or ministry consists of eight members, namely: Secretaries of interior, foreign affairs, war, marine, finance, justice and public instruction, agriculture, and public works. Legislative authority is vested in a Congress of two houses, the Senate and the House of Deputies, the former having 30 members, that is, two from each province and the federal districts, elected for nine years, and the latter having 120 members, elected by the people. According to the constitution, there should be one deputy for every 33,000 inhabitants. The term of the deputies is four years, but one-half of the House must retire every two years and one-third of the Senate is renewed every three years. The president at the beginning of 1919 was Señor Hipólito Yrigoyen, who was inaugurated Oct. 12, 1916, and the vice-president was Dr. Pelagio Luna.

HISTORY. At the beginning of the year a strike at the port of Buenos Aires of a serious nature was declared (January 7th), and it was reported that during the week before the iron-work strikers had established a reign of terror, entrenching themselves and attacking the workmen and the police. The employers were organized solidly against it and determined to crush it out. On the other hand the strikers were firm and the struggle threatened to be desperate. On January 11th it was announced that General Dellepiane had assumed a military dictatorship in the city. Throughout the day there were collisions between the strikers and the police, and it was reported that 72 persons were killed, 87 seriously wounded, and 800 slightly wounded. The strike now spread throughout the country. On January 12th it was reported that the general strike had ended, though there were still riotous movements in the streets. There was repeated talk of Bolshevik influence in these disorders, and on January 13th Pedro Wald, the so-called President of the Federal Republic of Argentine Soviets, was arrested along with other ring leaders. The strike had spread to Montevideo, but precautionary measures were taken against it and serious trouble was averted. The Department of Labor reported that during the first half of the year 1919 there were 259 strikes involving 262,319 workmen. Early in the year it was reported that German propaganda was active in the country, and that it was directed toward establishing friendly relations between Argentina and Germany. The Germans appeared to fear the possibility that their property would be taxed in connection with the indemnity demands. There was no proof that the local concerns in Argentina had any connection with the head office in Germany, but it was suspected that measures had been taken to disguise this connection.

ARIZONA. POPULATION. The population in 1910 was 204,354, and on July 1, 1919, it was estimated to be 280,280.

AGRICULTURE. The following table is compiled from a report of the Federal Department of Agriculture.

Crop	Year	Acreage	Produc. Bu.	Value
Corn	1919	39,000	1,287,000	\$2,574,000
	1918	34,000	952,000	1,999,000
Oats	1919	13,000	533,000	533,000
	1918	11,000	440,000	528,000
Barley	1919	29,000	1,102,000	1,543,000
	1918	80,000	1,020,000	1,326,000
Wheat	1919	43,000	1,204,000	2,709,000
	1918	38,000	988,000	2,371,000
Hay	1919	169,000	a 676,000	13,520,000
	1918	150,000	a 480,000	11,520,000
Cotton	1919	116,000	b 75,000	19,125,000
	1918	95,000	b 56,000	13,345,000

a Tons. b Bales.

TRANSPORTATION. In the year 1919 four companies constructed a total of 32.4 miles of new first track.

EDUCATION. The school population in the State between 6 and 21 years, is 77,777; the enrollment in the public schools in 1919 was as follows: in the grammar schools, 63,470; in the high schools, 4503. The daily attendance for the grammar schools was 38,139, while that of the high schools was 3220. There were 309 teachers in the high schools, 195 in the university and normal schools, and 1702 teachers in the public schools. The average salary per

month of teachers was as follows: for the grammar schools, male, \$135.13, female, \$98.95; for high schools, male, \$162.71, female, \$123.10. The total expense for educational purposes was \$2,973,339; of this \$2,364,931 was for the lower schools, and \$608,408 for the high schools.

FINANCE. According to the report of the Treasurer for the year ending June 30, 1919, the total receipts were \$7,089,715, and the disbursements amounted to \$5,760,454. The balance at the beginning of the year was \$1,832,576, and at the end of the year it was \$1,329,260. The bonded State indebtedness on Dec. 22, 1919, was \$869,972; the total bonded indebtedness of the State including the county and city indebtedness was on July 30, 1919, \$2,996,275.

STATE OFFICERS. Governor, Thomas E. Campbell; Secretary of State, Mit Simms; Auditor, Jesse L. Boyce; Treasurer, Harry S. Ross; Attorney-General, Wiley E. Jones; Superintendent of Public Instruction, C. O. Case; Legislative Reference Librarian, Con. P. Cronin.

JUDICIARY. Supreme Court: D. L. Cunningham, Chief Justice; Henry D. Ross, and A. C. Baker, Associate Justices; Clerk, C. F. Leonard. See **CHILD LABOR**; **MINERAL PRODUCTION**.

ARIZONA, UNIVERSITY OF. A co-educational State institution, at Tucson, Ariz. The enrollment for the summer session of 1919 was 78, while for the fall it was 968, of which 331 were women and 637 men. The faculty numbers 90. Productive funds of the University amount to \$10,500, while the income for the year was \$700,000. The library contains 32,000 volumes. During the year a women's dormitory and the Steward Observatory were constructed. One hundred and sixty students are being trained in the University under the provisions of the Federal Board for Vocational Education. The institution includes Colleges of Letters, Arts and Sciences, Mines and Engineering, and Agriculture. The University was founded in 1885. President, Rufus Bernhard von Kleinsmid, M.S., Ph.D.

ARKANSAS. POPULATION. The population of the State in 1910 was 1,574,449, and on July 1, 1919, it was estimated to be 1,819,587, a gain of 26,000 during the year.

AGRICULTURE. The following table is prepared from an estimate of the Federal Department of Agriculture.

<i>Crop</i>	<i>Year</i>	<i>Acres</i>	<i>Prod.</i>	<i>Bu.</i>	<i>Value</i>
Corn	1919	2,707,000	48,726,000	\$79,911,000	
	1918	2,700,000	85,100,000	63,180,000	
Oats	1919	420,000	9,240,000	8,181,000	
	1918	890,000	9,945,000	8,752,000	
Wheat	1919	340,000	8,280,000	6,525,000	
	1918	254,000	3,048,000	6,309,000	
Rice	1919	158,000	6,162,000	14,789,000	
	1918	170,000	6,443,000	11,597,000	
Hay	1919	550,000	a 770,000	15,785,000	
	1918	467,000	a 607,000	11,836,000	
Cotton	1919	2,563,000	b 830,000	151,060,000	
	1918	2,991,000	b 987,000	187,240,000	
Potatoes	1919	41,000	3,821,000	6,808,000	
	1918	48,000	2,400,000	4,416,000	
Sweet potatoes	1919	46,000	4,600,000	5,290,000	
	1918	38,000	3,420,000	4,720,000	

a Tons. b Bales.

TRANSPORTATION. In 1919 there was constructed only 2 miles of first track.

POLITICS AND GOVERNMENT. In October five white men, including one United States soldier, and a much larger number of negroes, were killed in a series of tragic incidents in Phillips

County. The trouble started when two white officers, who were on their way to Elaine in a motor car to arrest a white man wanted on a "bootlegging" charge, were fired upon at a negro church at Hoop Spur, one of the officers being killed and the other wounded. The church is said to have been full of armed negroes, members of a local organization called the "Farmers' Progressive and Household Union of America," which is said to have been formed for the purpose of enforcing demands that were to be made on the planters by their negro tenants or "share croppers." The Hoop Spur incident was followed by a collision between armed whites and negroes. Order was restored on the arrival of Governor Brough and 500 United States troops from Camp Pike, under command of Colonel Jenks. Considerable quantities of arms and ammunition were found in the hands of negroes. Eighty-six negroes were convicted in the Circuit Court at Helena of various offenses. The cases of 12 who were sentenced to death have been appealed to the Supreme Court, Governor Brough having granted stays of execution. In January, 1920, Robert L. Hill, the negro who was alleged to be the head of the "Farmers' Progressive and Household Union of America," was arrested at Topeka, Kan. He has been indicted in Phillips County on charges of having been accessory before the fact to the crimes of murder and night riding.

LEGISLATION. The year 1919 was unique in the State's legislative history because there were three sessions of the Legislature and a fourth session was called before the year was out. The largest amount of legislation enacted at the regular session, January 13th to March 13th, consisted of acts to create districts to build highways. The regular session ratified the prohibition amendment. The Legislature met in extra session July 28th-30th and by almost unanimous vote ratified the federal suffrage amendment. A second extra session, which met September 22d and adjourned October 1st, enacted a large amount of highway legislation curative of legislation that had been enacted at the regular session. Nearly all this legislation was on December 2d invalidated by the Supreme Court on the ground that the provision of the constitution requiring publication of intention to apply for special acts had not been complied with. Governor Brough then called a third extra session to meet Jan. 26, 1920.

Prior to the meeting of the 1919 Legislature, approximately 1405 miles of highway had been authorized under the general law and under special acts, the cost to be covered by bond issues totaling approximately \$14,000,000. The legislation enacted in 1919 authorized approximately 7195 miles of highways, the cost to be covered by bond issues totaling approximately \$86,340,000. Acts involving part of this road building programme remain to be validated by the special session that has been called for January, 1920. Road bonds are issued, not by the State, but by road districts, most of which are created by special acts of the Legislature. The State contributes to road building out of its revenue derived from the motor vehicle license tax, which during the year of 1919 amounted to \$475,000 and is rapidly increasing each year, and this fund is supplemented by federal aid, as in other States. See **COTTON**; **MINIMUM WAGE**. **ARKANSAS, UNIVERSITY OF.** A co-educational, land-grant State institution, at Fayette-

ville, Ark. There are colleges of arts and sciences, education, medicine (at Little Rock), engineering, and agriculture (experiment station). The enrollment for the summer of 1919 was 500 and in the fall, 720; the faculty numbers 90. The institution was founded in 1871. President, John Clinton Farrell.

ARMENIA. Before the war according to statistics issued under the authority of the Armenian patriarch the Armenians were in a minority in five Ottoman vilayets, namely, Erzeroum, Tiflis, Kharpout, Diarbekr, and Sivas, but were in a slight majority in the vilayet of Van where they numbered 185,000 out of the 350,000 inhabitants. In all six vilayets they formed only an average of 38.9 per cent of the population. In Cilicia they numbered 407,000 and in the central part of Trebizond they were placed at about 20,000, and in the eastern part 5000. The massacres and deportations during the war had greatly reduced their numbers, but exact figures were not available. According to the secret report of the president of a German Mission to Armenia during the war, published in 1919, the deportation of the Armenians had been organized systematically, region by region, from March to October, 1915. Nominally the population was to be removed to Mesopotamia, but, as a matter of fact, this was simply a pretext for destroying it. This book by a German authority devoted some 150 pages to an account of the atrocities and in many respects confirmed the Bryce report. According to the conclusions of the latter, the Armenian population before the atrocities of 1915 was between 1,800,000 and 2,000,000. Of these it was estimated that from 1,000,000 to 1,200,000 had been deported and that about half of these had perished. Figures published early in 1919 indicated that those who had escaped deportation numbered about 600,000; that those who had been deported but had survived, numbered 600,000; and that the rest had been massacred or had died of disease or hardships. The German authority above-mentioned quoted Turkish figures showing the number of Armenians killed at 300,000. The total number of killed was estimated at greatly above that and corresponded to the figures of the Bryce report. The American committee for Armenian relief reported in 1916 that the number of deaths was between 600,000 and 850,000. The Armenian delegation at Paris in March, 1919, declared that before the war the Armenians of Turkey numbered a little more than 2,000,000, and that during the war over a million Armenians had perished. Summing up the results of these various estimates, it would seem probable that the present number of survivors did not exceed the 1,200,000 mentioned in the Bryce report. The Armenian delegation estimated the number of Armenians in the former territory of Russia to the south of the Caucasus at about 1,800,000, of whom 1,300,000 were found in Russia proper; also that the Armenians scattered in different parts of the world numbered about 523,000. Thus the estimate of the total number in the world comes to about 4,000,000, of which less than 3,000,000 are grouped in the Armenian regions of Asiatic Turkey and Russia. See WAR OF THE NATIONS.

ARTILLERY. See MILITARY PROGRESS; NAVAL PROGRESS, etc.

ASHBROOK. ROBERT THOMAS FLOWER. Eighth Viscount Ashbrook, died March 9th. He

was born April 1, 1836. He was the inventor of an automatic hand loom, which has been extensively employed.

ASIA. See CHINA; JAPAN; EXPLORATION; and other subdivisions.

ASIA MINOR. See ANATOLIA; and TURKEY.

ASPHALT. The quantity of asphalt and allied substances produced in the United States in 1918 was 1,237,853 short tons, valued at \$18,540,032. This was a decrease in output of 190,473 short tons, or about 13 per cent. The value increased \$2,627,604, or 16.5 per cent, compared with the production in 1917, which was 1,428,326 short tons, valued at \$15,912,428.

The demand for imported native asphalt is still large, but the relative abundance and adaptability of petroleum asphalt has reduced considerably the production of native bitumens and bituminous rock from domestic quarries. Nevertheless, the increased price of domestic native bitumens more than offset the decline in output.

Crude native asphalt and allied substances imported for consumption in the United States in 1918 totaled 115,663 short tons, valued at \$814,752. There was a decrease in quantity of 72,702 short tons, or about 39 per cent, and a decline in value of \$305,106, or 27 per cent, compared with 1917. The resumption of normal conditions was expected to restore the importations of asphalt to pre-war proportions.

Petroleum asphalt (including road oil and flux) produced in 1918 from oil of domestic origin totaled 527,575 short tons, valued at \$7,435,204, a decrease in output of 174,234 short tons, or about 25 per cent, and in value of \$299,487, or only about 4 per cent, compared with 1917. The amount manufactured in this country from Mexican petroleum increased about 1 per cent in quantity and nearly 39 per cent in value.

Extensive projects for improvement of urban highways were taken as indicating a successful outlook for the domestic asphalt industry.

ASTOR, WILLIAM WALDORF. American multi-millionaire, great-grandson of John Jacob Astor, died in London, October 18th. He was a British subject at the time of his death, and had been in 1916 created a baron and raised to the peerage under the title Viscount of Haver Castle. He was born in New York City, March 31, 1848, and studied law for the purpose of qualifying himself to manage the Astor estate. For a short time he was interested in politics and was elected to the New York Assembly in 1877, and to the New York Senate in 1879, and ran for Governor against Roswell P. Flower, but was defeated, (1881). He was afterwards appointed minister to Rome. While holding this office (1882-85) he pursued the studies of art and literature which had always attracted him. In 1886 he published the novel *Valentino* and in 1889 *Sforza*. The fortune left by his father has been estimated at \$200,000,000, largely invested in real estate. The Astor holdings in New York covered a very wide area and dated back to the time when the original Astor purchased real estate on what was then the King's Highway, afterwards Broadway. Mr. Astor built three great hotels in the city, namely, the Netherland, the Waldorf, and the Astor. In 1890 he went to England, settled there, and in 1899 became a British subject. From that time on his interests were exclusively British and he was a member of the most conservative element. His ex-

patriation, as it was called in the press, gave rise to wide discussion and speculation as to its cause. Much was said about his desire to escape publicity and the discussion of his private affairs in the American press. According to other accounts he left America as the result of some family quarrel. The fact that he became a British subject occasioned an amount of comment in the American press far out of proportion to its significance, and this was generally marked by a spirit either of astonishment or contempt at the course he had taken. He was not a member of the Anglo-American circle in England, but only of the more exclusive conservative English society. For some years he exerted a certain influence as proprietor of the *Pall Mall Gazette*, which he turned into a Liberal from a Conservative organ, with the result that its entire staff resigned and founded the *Westminster Gazette*. He was also proprietor of the *Pall Mall Magazine*, more or less literary in its purpose and not aiming at commercial success. To this he contributed largely himself. Various rumors were afloat during the war as to the duties on his estate. These duties were 20 per cent in England on fortunes over \$1,000,000. In some quarters it was said that his income tax during the war on both his American and English revenues exceeded the amount of the income itself. His elevation to the peerage in 1916 was supposed to be in recognition of his generous contributions to the war fund. In England he built a magnificent office for the management of his estates next to the Law Temple in London and he bought the magnificent Cliveden estate at Taplow, Bucks, which he gave to his son Waldorf Astor. He married in 1878 Mary Dahl Paul, daughter of James W. Paul of Philadelphia. His eldest son Maj. Waldorf Astor who succeeded to the viscountcy was a Conservative in politics and a member of Parliament. The younger son, John Jacob Astor, was a captain in the Life Guards. Mr. Astor's property in New York City was estimated at a value of about \$60,000,000. Two months before his death deeds of trust were filed turning over to a trusteeship all his property to be held for his sons, and it was understood that this step was taken to escape the inheritance tax of 5 per cent on bequests of over \$1,000,000. The extent of his New York property appears from a list based on the 1911 assessments, according to which it extended all over the city from points in the southern extremity to upper Broadway, and ranging far toward the east and west sides. Its total assessed value at that time was \$50,290,000. In 1915 he deeded to his younger son the most valuable of the down-town holdings. The step taken for the trusteeship in 1919 marked the final stage in the policy, apparently pursued constantly after 1911, of quietly disposing of the property during his lifetime.

His eldest son, who succeeded to the title, took immediate steps to relinquish it in order to retain his seat in the House of Commons, but in this he was unsuccessful. On his becoming a peer, his seat in the lower House was vacant, and his wife, formerly Miss Nancy Langhorne of Virginia, immediately stood for Plymouth on the Unionist ticket as his successor in a spirited election contest, which was widely noticed in the British and American press. She won by a considerable plurality over her Labor and Liberal opponents (November 15th). She was the sec-

ond woman to be elected to Parliament, the first being Countess Markievicz who was elected on the Sinn Fein ticket, but did not take her seat. Lady Astor's audacities and ready sallies in the course of the campaign were much quoted in the press.

ASTRONOMY. A new international organization of astronomers was effected in July, 1919, in connection with the meeting, at Brussels, of the International Research Council. The new body is known as the International Astronomical Union, and will comprise representatives from corresponding national astronomical unions in the several countries. Meetings of the central body will ordinarily be held every three years. The next conference is to meet in Rome in 1922. M. Baillaud, director of the observatory of Paris, was elected president of the Union and Prof. A. Fowler, of the Imperial College of Science, South Kensington, secretary. Upwards of 30 committees have been appointed to supervise international undertakings in special branches of astronomy. The international exchange of astronomical telegrams is to be conducted hereafter through the Royal Observatory of Belgium, at Uccle, instead of through Kiel. Harvard College Observatory remains the centralizing agency for such telegrams in America. An international abstracting journal of astronomy has been started at the Paris Observatory, replacing the *Bulletin Astronomique* of that institution. It is called the *Revue Générale des Travaux Astronomiques*, and will appear monthly.

STRUCTURE OF THE UNIVERSE. Fresh light has been thrown upon the structure and extent of the stellar universe, especially through the remarkable researches of the Mount Wilson Observatory (which institution, it may be noted, has now dropped the designation "Solar" from its title, thus signaling the enlarged programme of its activities). The current annual report of this observatory says: "The continuation of a comprehensive investigation of globular star-clusters has resulted in an important addition, comprising novel and radical features, to existing theories of cosmogony. The absolute distances of all known globular clusters have been derived, directly or indirectly, from a remarkable relation which gives the absolute magnitude of a typical Cepheid variable star when its period of light variation is known. The clusters are thus found to range in distance from 6500 to nearly 70,000 parsecs, and to be secondary organizations in comparison with the Galaxy, which appears vastly greater in extent than hitherto supposed. Less complete evidence also supports the view that the spiral nebulae, instead of being 'island universes,' are part and parcel of a single, all-embracing sidereal system. The average brightness of the faint temporary stars discovered in spiral nebulae, of which 14 have now been found, may serve as a valuable means of measuring the distances and dimensions of these objects. The general investigation also indicates that a large, open, flattened star-cluster exists in the neighborhood of the sun, with its centre some 50 parsecs to the north of the central plane of the Galaxy. This immediately suggests the hypothesis that the phenomenon of star streaming results in part from the apparent motion of this cluster through a general field of stars widely scattered through space."

Dr. and Mrs. Harlow Shapley, of the Mount Wilson staff, who have made a special study of

the globular clusters, have recently brought to light the interesting fact that these objects are not generally spherical, but oblately spheroidal. The same investigators have also recently made several additions to the list of known globular clusters, bringing the total number up to 86. Their survey of these clusters leads to the probable result that every faint, little condensed cluster in galactic latitude higher than 15° or 20° is really globular, while the similar faint clusters along the galactic equator are, without exception, open groups, with no condensed background of faint stars appearing on photographic plates of long exposure. Thus the evidence grows continually stronger that open and globular clusters occupy regions of space that are mutually exclusive.

At the beginning of the year Prof. E. E. Barnard, writing in the *Astrophysical Journal*, returned to the subject of the curious dark markings in the sky concerning which he has published earlier papers, and gave a catalogue of 182 of these markings. He believes that some dark places seen in celestial photographs are actual vacancies, but that others are unquestionably due to intervening opaque masses. Whether these masses are gaseous or non-gaseous remains problematical. Some of the dark nebulae (if we may thus describe them) in the Milky Way are not necessarily devoid of light, for they may appear black merely by contrast with their bright background. There are numerous examples, however, which are not in the Milky Way, and which are perhaps totally devoid of light. It would seem that such bodies would be lost in the blackness of space, but they actually appear as black objects against space itself. This fact leads Professor Barnard to believe that interstellar space is pervaded with a feeble illumination. Two regions of the sky visible in the northern hemisphere are specially rich in these dark markings: viz., the region immediately north of Theta Ophiuchi, and the region of the great star-cloud in Scutum, near the cluster M 11.

The celestial illumination above mentioned must not be confused with another phenomenon to which Professor Barnard has recently called attention (*Proc. Amer. Phil. Soc.*, no. 3, 1919); viz, self-luminous night haze, which varies greatly in appearance from time to time and is apparently a phenomenon of the earth's atmosphere.

OTHER SIDEREAL PROBLEMS. Gyllenberg, of the University of Lund, Sweden, has published a notable discussion of the variable stars of long period, of which Mira Ceti is the most familiar example. An abstract of this publication is given by Professor Russell in the *Scientific American*, March 29, 1919. About 750 of these stars are now known, and their average period of variation is about 300 days, while their fluctuations in brightness generally amount to three magnitudes or more. A few are more than a thousand times brighter at maximum than at minimum. The general conclusion reached by Mr. Gyllenberg is that these stars must be classed among the "giants," since at maximum they average about 150 times the brightness of the sun. At minimum they probably sink to the sun's brightness, or, in a few cases, below it; but they are certainly not stars which are at the point of extinction, and flaring up at intervals "like a candle flickering in its socket."

J. H. Jeans, of Cambridge, continues his brilliant mathematical contributions to the subject of cosmogony, one result of which has been to rehabilitate to a large extent the Nebular Hypothesis of Laplace. He states in a recent paper that "Laplace's fundamental ideas, when developed mathematically to their logical conclusions, show a striking capacity for interpreting many if not most of the formations observed in the sky. The only formation which Laplace's hypothesis now seems definitely unable to explain is, paradoxically enough, just that particular one which it was specially created to explain, namely the solar system."

The new spectroscopic method of determining stellar parallaxes, developed by Adams at Mount Wilson Observatory, has now been applied to between 1500 and 1600 stars, including nearly all stars with trigonometric parallaxes and an extensive list of those with very large and very small proper motions. Hardly a single serious contradiction has been found between the spectroscopic and the trigonometric results. (*Proc. Nat. Acad. Sci.*, July, 1919.)

Professor Lindemann, in the *Monthly Notices*, R. A. S., March, 1919, deals at length with the application of the photo-electric cell to celestial photometry. The process is not new, having been extensively used in Germany since it was proposed, a decade ago, by Elster and Geitel, and also to some extent in the United States, but Professor Lindemann's paper furnishes a detailed account of the apparatus and points out a wide range of problems that may be investigated by this simple and sensitive method.

THE SOLAR ECLIPSE OF MAY 29 AND THE RELATIVITY THEORY. By far the most interesting topic of discussion in astronomical circles during the year, and one which attracted world-wide popular attention, related to the observations made during the total solar eclipse of May 29, 1919, for the purpose of testing the Relativity Hypothesis of Albert Einstein. This eclipse, the path of which crossed South America, the South Atlantic Ocean and Africa, was successfully observed by several expeditions, and furnished data of importance in regard to the effects of eclipses on radiotelegraphic signals and on terrestrial magnetism, but the most momentous results were those obtained by two British expeditions, which concentrated their efforts upon the task of securing series of photographs of the stars in the immediate vicinity of the sun in order to determine whether their light was deflected in the manner called for by the hypothesis above mentioned. One party, under Professor Eddington, was stationed at Principe, West Africa, and the other, under Dr. Crommelin, at Sobral, Brazil. At both places good photographs were obtained. The conditions for this test were especially favorable, as the sun was in a region of the sky that is rich in bright stars, and the duration of totality was longer than usual. The measurements of the plates, which were communicated at a joint meeting of the Royal Society and the Royal Astronomical Society on November 6th, showed beyond question that those stars whose images fell near the eclipsed sun were apparently shifted away from the sun's centre (as compared with stars farther from the sun, serving as standards of reference), and the amount of the shift in each case agreed closely with that predicted by the Einstein hypothesis.

The Hypothesis—or, as it now deserves to be

called, the Theory—of Relativity pertains to the domain of mathematical physics and has been prominent in advanced physical literature for more than a decade. It involves a fundamental departure, in principle, from the Newtonian theory of gravitation, but, as Einstein himself has stated, in practical application the two agree so closely that it has been difficult to find cases in which the actual differences could be subjected to observation. These cases fall within the field of astronomy, and are as follows:

1. The distortion of the oval orbits of planets around the sun. (Confirmed in the case of Mercury. The theory explains a hitherto unaccountable displacement in the perihelion of this planet.)

2. The deviation of light-rays in a gravitational field. (Presumably confirmed by the eclipse photographs just mentioned.)

3. The shifting of spectral lines toward the red end of the spectrum in the case of light coming to us from stars of appreciable mass. (Not yet confirmed, though the shift required by the theory is of such magnitude that it ought to be easily detected by the refined spectroscopic methods now in common use at observatories. The fact that this shift has not been found is the chief outstanding obstacle to the complete acceptance of the theory.)

SUN AND PLANETS. The last sun-spot maximum occurred about August, 1917. Although the descending curve of spottedness has been generally steep since that time, the year 1919 was one of considerable solar activity. Two remarkable prominences were photographed at Mount Wilson; one, on May 29th, rose to the enormous altitude of 780,000 kilometers (472,000 miles) above the sun's surface; the other, on July 15th, attained an altitude of 720,000 kilometers (447,000 miles). Curious irregularities in the movements of these prominences have been studied with the aid of photographs taken at intervals of a few minutes. (*Popular Astronomy*, December, 1919.)

C. G. Abbot (*Proc. Nat. Acad. Sci.*, September, 1919), in an account of the simultaneous observations of solar radiation made during 1918 at Mount Wilson and at Calama, Chile, states that the results furnish strong evidence that the short-period variations noted in the radiation received at the earth are in the sun itself. The radiation observations at Calama are now telegraphed regularly to the Argentine meteorological service, for application in weather forecasting.

The 11th report of the Mars Section of the British Astronomical Association, dealing with the apparition of 1913-14, was published in April, 1919. The most interesting feature of this apparition was the exceptionally slow diminution of the north polar snow cap, and the coincidence of this fact with the great minimum of solar activity. The shrinkage of the snow cap lagged behind the normal much more than at any time since 1864, as if solar heat were lower in 1913 than during any of the 10 previous apparitions of Mars in which the planet was observed partly or wholly in the same heliocentric longitudes.

In 1915 the late Prof. Percival Lowell calculated, from perturbations in the orbit of Uranus, that a trans-Neptunian planet exists with an orbit about 12,000,000,000 miles in diameter. In consequence of further investigations, by W. H. Pickering, which also take account of

perturbations of Neptune, it was predicted that the hypothetical planet would be in opposition at the end of December, 1919, and Harvard College Observatory invited astronomers to aid in a search for it.

COMETS. Five comets were discovered during the year, four of which proved to be periodic comets previously known: viz, Kopff's, found by Gonnessiat in August; Brorsen's, by Metcalf in August; Finlay's, by Sasaki in October; and Schaumasse's, by its original discoverer in October. A new comet was discovered, independently, by Metcalf and Borelly in August.

CALENDAR AND TIME. The perennial question of reforming the calendar assumed unusual prominence early in 1919, owing to discussions of the subject in the French Academy of Sciences and the opportunity supposed to be afforded by the Peace Conference for both improving and unifying the calendars in use in different countries. Proposals were put forth by Bigourdan, Deslandres, Flammarion, Ch. Nordmann, and others, but nothing definite seems to have been accomplished.

The long-mooted proposal to change the beginning of the astronomical day from noon to midnight, thus bringing astronomical time into conformity with civil time, has been accepted by the British Admiralty, which announces that the change will be inaugurated in the British Nautical Almanac for 1925. It is supposed that the other countries which issue nautical almanacs will make the same change at the same time.

NECROLOGY. Prof. Edward C. Pickering, director of Harvard College Observatory for 42 years and president of the American Astronomical Society for 13 years, died Feb. 3, 1919. Among the other eminent astronomers who died during the year were Prof. A. Riccò, director of the Observatory of Catania, and Prof. C. L. Doolittle, professor emeritus of astronomy at the University of Pennsylvania.

ATHLETICS, TRACK AND FIELD. The triumph of the United States in the Inter-Allied meet held in Pershing Stadium, France, during June and July was the feature of the year 1919 in track and field athletics. The points scored by the Americans totalled 92. France finished second with 12, followed by New Zealand with 6, Australia with 5, Canada with 4, and Greece with 1. The winners of some of the principal contests were:

100-meter dash, Charles W. Paddock, U. S., 10 $\frac{1}{4}$ seconds; 200-meter dash, Paddock, 22 seconds, unofficial; 400-meter run, Earl Eby, U. S., 50 seconds; 800-meter run, Daniel L. Mason, New Zealand, 1 minute 55 $\frac{1}{2}$ seconds; 1500-meter run, Clyde Stout, U. S., 4 minutes 51 $\frac{1}{2}$ seconds; modified marathon, Jean Vermeulen, France, 55 minutes 11 seconds; 110-meter high hurdles, Robert Simpson, U. S., 15 $\frac{1}{4}$ seconds; 200-meter hurdles, Simpson, 24 $\frac{1}{4}$ seconds; running high jump, Clinton Larsen, U. S., 6 feet 1 inch; running broad jump, Sol Butler, U. S., 24 feet 9 $\frac{1}{2}$ inches; standing broad jump, William Taylor, U. S., 9.37 feet; hop, step, and jump, Herbert Prem, U. S., 48 feet; pole vault, F. W. Floyd, U. S.; pentathlon, Robert le Gendre, U. S.; javelin throw, George Bronder, U. S.; discus throw, Charles Higgins, U. S.; shot put, Edgar Caughey, U. S., 44.08 feet.

Relay Races—800-meter, U. S. first, Canada second, Australia third, 1 minute 30 $\frac{1}{2}$ seconds, (U. S. team Charles Paddock, Marshall Had-

dock, E. A. Torkelson, Edward A. Teschner); 1600-meter, U. S. first, Australia second, France third, 3 minutes 20½ seconds, (U. S. team Earl Eby, Edward A. Teschner, J. Meehan, Edward Campbell); medley race, U. S. first, Australia second, France third, 7 minutes 43 seconds, (U. S. team Carl F. Haas, William C. Grey, F. F. Campbell, Edward A. Teschner).

Fencing—Individual foils, winner, Nadio Nadi, Italy; épée, winner, Henri Laurant, France; saber team, winner, Italy; foils team, winner, France; épée team, winner, France.

Shooting—rifle shooting, team, U. S. first, Canada second; rifle shooting, individual, Stanley Smith, U. S. first, Lester U. Hansen, U. S., second, Richard I. Ditus, U. S., third; pistol shooting, team, U. S. first, France second, Italy third; pistol shooting, individual, Michael Kelly, U. S., first, D. R. Raymond, U. S., second, Paul Bird, U. S., third.

Swimming—110-meter, free style, Norman Ross, U. S., first, L. T. Solomon, Australia, second, I. Stedman, Australia, third; 100-meter back stroke, Norman Ross, first, H. M. Gardner, U. S., second, Daniel Lehu, third; 400-meter, free style, Norman Ross, first, W. Longworth, Australia, second, I. Stedman, Australia, third; 800-meter, free style, Norman Ross, first, W. Longworth, second, Luigi Bacigalupe, Italy, third; 800-meter relay, free style, Australia first, U. S. second, Italy third.

Boxing (winners of finals)—bantamweight, Digger Evans, Australia; featherweight, De Ponthieu, France; lightweight, McNeil, U. S.; welterweight, J. Attwood, Canada; middleweight, Edward Eagen, U. S.; heavyweight, Robert Martin, U. S.

Wrestling (winners of finals)—catch as catch can, Slinger, U. S., bantamweight; Jahault, Italy, featherweight; Farley, U. S., welterweight; Metropolis, U. S., lightweight; Prem, U. S., middleweight; Parcaut, U. S., light heavyweight; Salvatore, France, heavyweight. Greco-Roman, Wiseman, U. S., bantamweight; Dierk, Belgium, featherweight; Beranek, Czecho-Slovakia, lightweight; Halick, Czecho-Slovakia, welterweight; Vanantwerpen, Belgium, middleweight; Koprive, Serbia, light heavyweight; Berenhard, France, heavyweight.

France carried off the honors in the golf competitions held in connection with the Inter-Allied meet, winning both the team and the individual contests. In tennis, the singles final was won by Gobert of France, while in the doubles match Wood and Lycett of Australia triumphed over Washburn and Mathey of the United States.

Joie W. Ray of the Illinois Athletic Club and Frank K. Foss of the Chicago Athletic Association were the two American athletes to distinguish themselves by their brilliant performances on track and field during 1919. Ray's star achievement of the year was his running 1000 yards in the national indoor championships held at Brooklyn in the record breaking time of 2 minutes 13½ seconds. Foss set a new pole vault mark of 13 feet 3¾ inches. This leap erased the old world figures for the event, 13 feet 2¼ inches, made by Marc S. Wright some years back.

The national Amateur Athletic Union senior outdoor championships were held at Philadelphia on September 13th, the team honors going to the New York Athletic Club with a total of 46 points. The Chicago A. A. was second with 40

points, and the Illinois A. C. third with 26 points.

Other clubs to score were: Boston A. A., 21; Multnomah A. A., 11; Loughlin Lyceum, 11; Spokane A. C., 7; Millrose A. A., 5; Paulist A. C., 5; Pittsburgh A. A., 5; Mohawk A. C., 4; Cross Country Club of Baltimore, 3; Meadowbrook Club, 3; Notre Dame University, 3; University of Chicago, 3; Olympic Club of San Francisco, 2; Salem-Crescent A. C., 2; U. S. Marine Corps, 2; St. Christopher Club, 1; Baltimore A. A., 1.

The individual winners in the senior outdoor meet were: 100-yard dash, William B. Hayes, Boston A. A., 10½ seconds; 220-yard dash, Henry Williams, Spokane A. C., 21½ seconds; 440-yard run, Frank Shea, Pittsburgh A. A., 51½ seconds; 880-yard run, Joie Ray, Illinois A. C., 1 minute 56 seconds; 1-mile run, Joie Ray, Illinois A. C., 4 minutes 14½ seconds (new record); 3-mile walk, William Plant, Morning-side A. C., 22 minutes 3¼ seconds; 120-yard high hurdles, Robert Simpson, Illinois A. C., 15½ seconds; 220-yard low hurdles, Robert Simpson, Illinois A. C., 24½ seconds; 440-yard low hurdles, Floyd Smart, Chicago A. A., 55½ seconds; 5-mile run, Charles Pores, Millrose A. A., 26 minutes 2 seconds; running high jump, John Murphy, Multnomah A. A., 6 feet 3¾ inches (new record); throwing 16-pound hammer, Patrick Ryan, Loughlin Lyceum, 175 feet 5¾ inches; running broad jump, Floyd Smart, Chicago A. A., 22 feet 7¼ inches; putting 16-pound shot, Patrick McDonald, New York A. C., 45 feet 8 inches; pole vault, Frank Foss, Chicago A. A., 12 feet 9 inches; running hop, step, and jump, Sherman Landers, Chicago A. A., 47 feet 8½ inches; throwing 56-pound weight, Patrick McDonald, New York A. C., 37 feet 6 inches; throwing the discus, Arlie Mucks, Chicago A. A., 143 feet 9¾ inches.

The national senior indoor championships were contested at the 13th regiment armory, Brooklyn, N. Y., on March 8th. The team winner was the Boston A. A., with 13 points. The St. Louis A. A. and the Marietta, Ohio, Y. M. C. A. were tied for second honors with 10 points each. Six teams were deadlocked for third place with 5 points each. They were Glencoe A. C., Illinois A. C., University of Chicago, New Hampshire State College, Cornell University, and Princeton University. Other point winners were: University of Pennsylvania, 4; Pastime A. C., 4; Chicago A. A., 3; Loughlin Lyceum, 3; Lafayette College, 3; Bronx Church House, 2; Clark House A. A., 2; Paulist A. C., 2; Meadowbrook Club, 2; Columbia University, 2; Stevens Institute of Technology, 2; Morningside A. C., 1; Brooklyn A. A., 1; Knights of St. Antony, 1; unattached, 32.

The individual winners were: 60-yard dash, Loren Murchison, St. Louis A. A., 6¾ seconds; 300-yard run, Loren Murchison, St. Louis A. A., 32¾ seconds; 600-yard run, Jack Sellers, unattached, 1 minute 15¾ seconds; 2-mile run, Gordon Nightingale, New Hampshire State College, 9 minutes 28¾ seconds; 1000-yard run, Joie Ray, Illinois A. C., 2 minutes 16¾ seconds; 2-mile walk, Edward Renz, unattached, 14 minutes 33¾ seconds; running high jump, Walter Whalen, Boston A. A., 5 feet 11 inches; standing broad jump, Lieut. William Taylor, Marietta, Ohio, Y. M. C. A., 10 feet 5¾ inches; 1½-mile relay, Boston A. A.

The national junior outdoor championships were held at Franklin Field, Philadelphia, on September 12th, the New York A. C. athletes rolling up the largest number of points, 34. The Boston A. A. was second with 20 points, and the Multnomah A. A. third with 20. The teams of Princeton University and the Pastime A. C. tied for first honors in the junior indoor meet which was held at Brooklyn on February 15th, with 10 points each.

The 43d annual outdoor track and field championships of the Intercollegiate Association of Amateur Athletes of America were held at the Harvard Stadium, Cambridge, Mass., on May 30th and 31st. The point honors were captured by Cornell University with a total of 39½ points. The University of Pennsylvania finished second with 29 points, and the University of Michigan third with 25½ points. Other point winners were: Harvard University, 23; Dartmouth College, 14; Yale University, 13½; Princeton University, 12; Bowdoin College, 9; Rutgers College, 5½; Massachusetts Institute of Technology, 5; University of Maine, 5; Lafayette College, 4; Columbia University, 3; Syracuse, 3.

The individual victors were:

100-yard dash, W. Creed Hammond, Pennsylvania, 10 seconds; 220-yard dash, W. Creed Hammond, 21¾ seconds; 440-yard run, K. A. Mayer, Cornell, 49¾ seconds; 880-yard run, K. A. Mayer, 1 minute 56¾ seconds; 1-mile run, Denis F. O'Connell, Harvard, 4 minutes 23¾ seconds; 2-mile run, Ivan C. Dresser, Cornell, 9 minutes 22¾ seconds (new intercollegiate record); 120-yard high hurdles, Walker Smith, Cornell, 15¼ seconds; 220-yard low hurdles, Walker Smith, 24¼ seconds; running high jump, R. W. Landon, Yale, 6 feet 2 inches; running broad jump, Carl E. Johnson, Michigan, 23 feet 10½ inches; pole vault, E. E. Myers, Dartmouth, 12 feet 6 inches; putting 16-pound shot, W. H. Allen, Maine, 44 feet 6¼ inches; throwing 16-pound hammer, L. H. Weld, Dartmouth, 143 feet 2¼ inches.

Frederick W. Rubien, secretary-treasurer of the Amateur Athletic Union, made the following All-America selections for the year 1919:

All-America Athletic Team—100-yard dash, Charles W. Paddock, University of Southern California; 220-yard dash, Henry Williams, Spokane A. C.; 440-yard run, Frank J. Shea, Pittsburgh A. A.; 880-yard run, Homer Baker, Glencoe A. C.; 1-mile run, Joie W. Ray, Illinois A. C.; 2-mile run, Ivan C. Dresser, Cornell University; 5-mile run, Charles Pores, Millrose A. A.; 10-mile run, Fred Faller, Dorchester A. A.; 120-yard hurdles, Fred W. Kelly, New York A. C.; 220-yard hurdles, Robert C. Simpson, Illinois A. C.; walking, William Plant, Morningside A. C.; running high jump, John Murphy, Multnomah A. A.; running broad jump, Sol Butler, Dubuque College; running hop, step, and jump, Sherman G. Landers, Chicago A. A.; putting 16-pound shot, P. J. McDonald, New York A. C.; throwing 56-pound weight, M. J. McGrath, New York A. C.; throwing the discus, A. W. Mucks, Chicago A. A.; throwing 16-pound hammer, P. J. Ryan, Loughlin Lyceum; throwing the javelin, George A. Bronder, New York A. C.; pentathlon, Robert le Gendre, Georgetown University; all-around, S. Harrison Thompson, Princeton University; marathon, Carl Linder, Hurja Club, Boston, Mass.

All-America College Team—100-yard dash, Charles W. Paddock, University of Southern

California; 220-yard dash, W. Creed Hampton, University of Pennsylvania; 440-yard run, E. C. Curtis, University of Chicago; 880-yard run, K. A. Mayer, Cornell University; 1-mile run, Denis F. O'Connell, Harvard University; 2-mile run, Ivan C. Dresser, Cornell University; cross country, John Simmons, Syracuse University; 120-yard hurdles, Walker Smith, Cornell University; 220-yard hurdles, Carl Johnson, University of Michigan; running high jump, R. W. Landon, Yale University; running broad jump, Sol Butler, Dubuque College; pole vault, E. E. Myers, Dartmouth College; putting 16-pound shot, W. H. Allen, University of Maine; throwing 16-pound hammer, L. H. Weld, Dartmouth College; throwing the discus, E. Gilfillan, University of Notre Dame; throwing the javelin, R. M. Angier, University of Chicago; pentathlon, Robert le Gendre, Georgetown University.

All America Scholastic Team—100-yard dash, E. A. Torkelson, Phillips Exeter Academy; 220-yard dash, J. R. Patterson, Port Jervis H. S.; 440-yard run, W. I. L. Adams, Hill School; 880-yard run, M. Richman, South Side H. S., Newark, N. J.; 1-mile run, J. Connolly, Woburn H. S.; 2-mile run, G. Douglass, Central H. S., Newark, N. J.; cross country, J. Helme, Lafayette H. S., Buffalo, N. Y.; 120-yard hurdles, A. Young, Haverford H. S.; 220-yard hurdles, M. Graham, Bethlehem prep.; running high jump, Harold Muller, Oakland Technical H. S.; running broad jump, Carl Beck, Harrisburg Technical H. S.; pole vault, A. Hulman, Worcester Academy; putting 12-pound shot, A. Foster, Bethlehem Prep; throwing 12-pound hammer, Ralph G. Hills, Hill School; throwing the discus, F. F. Rutans, Hill School; throwing the javelin, Arthur Tuck, Oregon School.

After a lapse of five years due to the war the Amateur Athletic Association of Great Britain resumed its championships at Stamford Bridge, London, on July 5th. Much to the disappointment of a large crowd of spectators no American athletes were able to compete; but practically every part of the British Empire was represented. A notable performance was the running of the 100-yard dash by W. A. Hill of the Surrey A. C. in 10 seconds flat.

In the Scandinavian track and field championships contested at Stockholm, the Swedes were victorious with a total score of 39 points. Norway was second with 23 points, while Denmark finished last with 22 points. See CROSS COUNTRY RUNNING and MARATHONS.

ATOMIC STRUCTURE. See CHEMISTRY, GENERAL PROGRESS OF.

AUSTRALIA, COMMONWEALTH OF. A self governing dominion of the British Empire consisting of the six original States of New South Wales, Queensland, Victoria, South Australia, Western Australia, and Tasmania, and of two territories, the Northern Territory, and the Federal Territory. It lies between the Indian and Pacific Oceans and consists of the island continent of Australia and the adjacent small islands. The temporary seat of government is Melbourne, Victoria, but the permanent seat will be Canberra, the district of Yass-Canberra having been acquired from the State of New South Wales in 1910 (area about 940 square miles) and constituting the Federal Territory.

AREA AND POPULATION. The following table shows the estimated area in square miles and the population according to the census of April 3,

1911, and the estimates of June 30, 1918, by States and Territories:

States and Territories	Area Sq. Miles	Population	
		Census April 3, 1911	Estimated June 30, 1918
New South Wales..	309,432	1,846,734	1,897,084
Victoria	87,884	1,315,551	1,416,982
Queensland	670,500	605,813	705,588
South Australia	380,070	408,558	439,275
West Australia	975,920	282,114	311,121
Tasmania	26,215	191,211	202,842
Northern Territory ..	523,620	8,310	5,269
Federal Territory...	940	1,714	2,404
Commonwealth ...	2,974,581	4,455,005	4,980,565

The above figures do not include the aborigines whose number has been variously estimated at from 75,000 to 100,000. The estimated population of the capital cities, with suburbs, Jan. 1, 1916, were: Sydney, New South Wales, 763,000; Melbourne, Victoria, 684,000; Brisbane, Queensland, 161,938; Adelaide, South Australia, 209,450; Perth, Western Australia, 106,792; Hobart, Tasmania, 39,838.

The marriages, births and deaths for 1917 as given by the *Statesman's Year Book* for 1919 were as follows:

States and Territories	Marriages	Surplus of		
		Births	Deaths	Births
States—				
New South Wales	13,246	52,448	17,941	34,507
Victoria	9,505	33,033	14,555	18,478
Queensland	4,868	19,787	6,555	13,232
South Australia ..	3,252	11,326	4,865	6,461
Western Australia	1,621	7,882	2,769	5,113
Tasmania	1,138	5,376	1,768	3,608
Territories—				
Northern Territory	34	69	63	6
Federal Capital Territory	2	44	13	31
Total	33,666	129,965	48,029	81,936

In 1917 there were 65,089 arrivals and 87,039 departures, but among them was included the expeditionary forces, of whom there were 28,449 arrivals and 46,488 departures.

RELIGION AND EDUCATION. According to the census of 1911 there were: Christians, 4,274,414; non-Christians, 36,785; indefinite, 14,673; of no religion, 10,016; persons unwilling to state their religious beliefs, 83,003; unspecified, 36,114. The chief denomination was the Church of England with 1,710,443, and the rest in their order of numerical importance were: Roman Catholic, Presbyterian, Methodist, Baptist, Congregational, Lutheran, and Church of Christ. In 1917 New South Wales had 3412 government schools, 8228 teachers, and 282,757 pupils enrolled; 659 private schools with 3707 teachers and 75,326 pupils. Victoria had 2202 state schools with 6275 teachers, and 254,033 pupils; 495 registered schools with 1970 teachers, and 56,193 pupils. Queensland had 1545 government schools with 4075 teachers, and 88,259 pupils in average attendance; private schools, 156, with 841 teachers and an average attendance of 16,880. South Australia had 885 government schools with 7095 pupils; 169 private schools with 12,011 pupils. Western Australia had 646 government schools with 47,654 pupils; private schools, 123, with 11,484 pupils. Tasmania had, in 1916, 485 public elementary schools with 35,827 pupils. Besides government schools given

in the above figures there are high technical and other secondary schools in all the States and each of the capital cities of the States is the seat of a university; Sidney, 1917, teaching staff 175, students, 1736; Melbourne, 1332 students; Brisbane, teaching staff 29, students 227; Adelaide (1913), students 720; Perth (1913), students 182; Hobart (1916), students 98.

PRODUCTION. The following table taken from the *Statesman's Year Book* for 1919, shows area in crops and their yield in 1916-17:

Crops	Total Acreage	Total Yield Bushels	Yield per Acre Bushels
Wheat	11,532,828	152,420,189	13.22
Oats	844,180	14,018,009	16.61
Barley	230,253	4,080,492	17.72
Maize	360,072	8,527,186	23.68
		Tons	Tons
Hay	2,671,862	3,507,589	1.31
Potatoes ...	149,895	857,002	2.88
Sugar-cane ..	178,190	1,723,072	21.24†
Beet Sugar..	1,340	15,159*	11.31
Grapes			
Vineyards ..	65,894	98,374	1.87‡
		Gallons	Gallons
Wine .....	.....	5,126,268	203.45‡
Orchards and fruit gardens	257,687	23,474,704	£13 9s. 8d.

* Beets worked. The sugar manufactured was 1,948 tons, and molasses 480 tons.

† Tons per acre of productive crops.

‡ Including 35,480 tons for wine from 25,201 acres of productive vines.

‡ Gallons per acre of productive vines.

In 1916-17 the total area under crops was 16,806,380 acres, and the total value of the agricultural production was £60,206,764. The acreage of wheat for 1917-18 was placed at 9,673,000 with a yield of 114,886,000; oats at 580,000 with a yield of 9,850,000 bushels. The sugar crop for 1916-17 was placed at 335,000 tons and the estimated yield for 1917-18 at 315,000 tons. Latterly tobacco-growing has become important. The amount consumed per annum has been estimated at 15,000,000 lbs. of which according to expert opinion in 1919 at least 75 per cent would be locally produced in the near future.

ECONOMIC CONDITIONS. No definite figures were available for the production of industries and agriculture in 1919. However, some points in regard to general conditions were set forth by Mr. Mark Sheldon, Commissioner for Australia in the United States. According to him the country was enjoying the greatest prosperity in its history. This was due chiefly to the attitude of labor which was harmonious and considerate of the welfare of the country, also to the natural resources of Australia, and to the fact that it consisted of an English-speaking community. As to the labor movement, it had been orderly, and the results were good. The arbitration system had worked well, especially in the settlement of small disputes which would have culminated in strikes. The disorderly element characteristic of other countries had to a large degree been suppressed. For example, a law had been passed against the Industrial Workers of the World, which organization was declared illegal, and the result of it had been practically its suppression. The cost of staples was lower than in other countries, and the high cost of living was not burdensome. One great need of the country

was man power. It could make room to advantage for over 10,000,000, that is to say, over twice the present population. At the present time there was a severe shortage of transport, and the wheat crops of three seasons were still in storage for lack of shipping. The country was now undertaking measures for the expansion of trade. The new expanding industry was that of wine production, Australian wines having recently reached almost the same level as the wines of Spain and France. He declared that the country was behind Mr. Hughes, the Prime Minister, and heartily approved of all that he had done at the Paris Conference. It was estimated that about 90 per cent of the people supported him as the true representative of the country.

GRAZING. Australia is one of the chief sheep-raising countries of the world, but the number of sheep has declined in recent years. The revised figures for the close of the year 1916 give the number of sheep for the Commonwealth at 76,669,000, New South Wales having the greatest number. At the same date horses numbered 2,437,000; cattle, 10,459,000; and pigs, 1,006,763. Wool production in 1916-17 was placed at 547,702,295 pounds, valued at £35,964,000 as compared with 550,604,675 pounds in 1915-16, and 711,134,203 pounds in 1913-14. The exports of wool in 1916-17 were placed at about 396,000,000 pounds. See AGRICULTURE; DAIRYING.

MINING. The mineral production in the Commonwealth was valued in 1917 at £25,600,000 including gold, £6,180,000; coal, £5,600,000; copper, £4,860,000; silver and lead, £5,510,000; tin, £1,050,000. Australia is one of the chief gold-producing countries of the world and down to the end of 1917 had produced gold to the value of £584,100,000. The gold production reached its highest point in 1903 when it stood at £16,294,686, but since that time has steadily decreased. The leading States in gold production are: New South Wales, Victoria, and Western Australia. Total value of mineral production in Australia down to the end of 1917 was £928,100,000.

COMMERCE. In the first year of the war there was a great decline in both imports and exports, but there was a recovery to some extent in 1915-16. The trade including specie and bullion is shown in the following table which distinguishes total imports, domestic exports (that is, exports of Australian produce), and total exports. Figures for 1914 are for the first six months only; in that year the trade year was changed from the calendar year to the year ending June 30.

Years	Imports £	Exports		
		Australian Produce £	Other Produce £	Total £
1913	79,749,653	75,188,147	3,433,622	78,571,769
1914	89,777,497	86,265,764	1,664,328	87,930,087
1914-15	64,481,837	58,122,573	2,470,008	60,592,576
1915-16	77,521,142	71,792,525	2,965,796	74,778,321
1916-17	76,228,679	95,039,973	2,915,509	97,955,482
1917-18	60,368,144	72,059,207	2,979,975	75,089,182

The imports and exports of specie and bullion in 1916-17 were £272,264 and £12,015,605.

Leading imports in 1916 and 1917 and in 1917-18 (provisional) were in thousands of pounds sterling as follows: Metal manufac-

tures, £8266 and £7206; cotton and linen piece goods, £6302 and £6518; apparel, £3768 and £3302 (exclusive of hats and caps, £322 and £255; and boots and shoes, £449 and £239); drugs, chemicals, and fertilizers, 3130 and £3358; woolens, £3235 and £1895; machines and machinery, £2814 and £2095; oils in bulk, £2915 and £2680; silk pieces, £2505 and £2115; boxes and sacks, £2677 and £2659; paper, £3335 and £2107; tea, £1748 and £1551; timber, £1477 and £1427; spirits, £1745 and £1252; tobacco, £1115 and £548.

Leading exports in 1916-17 and 1917-18 (provisional) in thousands of pounds sterling were: Wool, £28,953 and £24,587; wheat, £13,375 and £5990; copper matte, ingots, bars and ore, £4317 and £3115; lead, pig and matte, £4150 and £3212; skins and hides, £2274 and £2856; beef, £4947 and £3699; flour, £3463 and £4420; zinc and concentrates, 1085 and £351; leather, £1159 and £779; butter, £5339 and £4904; mutton and lamb, £1541 and £453; rabbits and hares, £913 and £985; tin ingots, £571 and £1065; tin ore, £232 and £28; coal, £416 and £256; tinned meat, £997 and £2363; tallow, £1152 and £909. Trade with some other important countries in thousands of pounds sterling for 1916-17 was as follows:

To	Exports 1916-17
United Kingdom	257,843,684
Canada	6,392,579
New Zealand	2,996,313
India	2,852,582
Ceylon	167,828
South African Union	1,888,479
Java	730,911
Belgium	4,079,761
France	6,783,083
Germany	3,726,788
U. S. America	1,465,399
Japan	4,453,187
Russia	
Italy	

In the following table are given the figures of the direct foreign trade of Australia, imports to and exports from the several states for the year 1916-17.

States Imports	1916-17
New South Wales	\$159,387,931
Victoria	123,973,304
Queensland	30,479,386
South Australia	29,775,476
Western Australia	21,345,043
Tasmania	4,877,470
Northern Territory	402,824
Total	\$370,966,866

States Exports	1916-17
New South Wales	\$244,740,295
Victoria	92,610,205
Queensland	70,769,967
South Australia	41,580,283
Western Australia	22,607,656
Tasmania	4,877,470
Northern Territory	64,477
Total, Australian produce	\$462,512,029
Re-exports	14,188,824
Total exports	\$476,700,853

Australia's overseas trade for the fiscal year ending March 31, 1919, was greater in volume than in any year since the Commonwealth was established. It amounted to £211,439,667 (\$1,028,970,000), or more than £40 (\$194) per capita

for every man, woman, and child in Australia. In 1918, exports aggregated £112,648,347 (\$548,203,181), and the imports £98,791,320 (\$480,767,959), and the balance in favor of Australia was £13,857,027 (\$67,435,222). Australian exports, including gold, for the year ending June 30, 1919, were valued at \$547,959,852. Imports during this same period reached a value of \$480,767,956. The balance of trade in favor of the Commonwealth of Australia was therefore \$67,191,896. The exports and imports for this period were distributed among the different States as follows:

States	Exports	Imports
Victoria	\$185,561,968	\$188,680,580
New South Wales	245,281,808	218,481,837
Queensland	60,575,019	29,572,557
South Australia	56,048,794	30,836,840
West Australia	45,956,894	15,288,515
Tasmania	4,535,869	2,962,627
Total	\$547,959,852	\$480,767,956

FINANCE. Commonwealth revenue and expenditure are given as follows for the fiscal years ending June 30:

Revenue:	1915-16	1916-17	1917-18
Customs	£18,621,471	£12,369,931	£9,487,588
Excise	8,323,470	3,236,510	3,737,757
Land tax	2,040,176	2,121,847	2,128,778
Probate and success. duties	625,990	1,062,013	943,232
Income tax	3,933,471	5,622,026	7,385,543
Post, Telegraph and Telep.	5,055,183	5,488,765	5,755,722
All other	2,028,182	4,134,081	7,369,398
Total revenue	£30,627,943	£34,035,178	£26,802,968
Loans	60,424,689	.....	.....
Total receipts	£91,052,632	.....	.....
Expenditure:			
Old age pen- sions	£2,859,766	.....	.....
Maternity al- lowances	659,715	.....	.....
Defense and fleet	46,107,439	66,279,091	70,665,205
P. O. Dept.	5,983,780	5,883,811	5,677,415
All other	3,302,740	*9,123,398	*8,433,163
Total expend.	£58,913,440	£81,286,300	£84,775,783
Contribution to States	6,346,995	6,270,419	6,340,374
Total disburse- ments	£65,260,435	£87,556,719	£91,116,157

*Including old age pensions and maternity allowances.

For 1918-19 the estimated revenue was £40,670,500, and the estimated expenditure £45,344,595 as reported for June 30, 1918. To meet the deficit it was proposed to increase the income tax by 30 per cent and the land tax by 20 per cent, and also to increase the taxes on liquors and amusements. Tariffs were raised to preserve enterprises begun in war-time. The total Commonwealth debt was £284,022,072 including the war loan from the British government of £40,082,059. The total of Australian war loans down to October, 1918, was £187,705,805. Total Australian war expenditure for five years ending June 30, 1919, was estimated at £284,641,608, of which the greater part, £238,809,847, was charged against loans. The public debt of the several States on June 30, 1917, was £372,517,623.

The following synopsis of the financial condition of the Commonwealth, supplied by the United States Bureau of Domestic and Foreign

Commerce, is based on the report of the acting treasurer of Australia:

The public debt of the Commonwealth of Australia at June 30, 1919, amounted to \$1,585,425,723, made up of the following items (American currency):

War loans raised in the Commonwealth..	\$944,521,767
Deduct repurchases and securities sur- rendered in payment of succession duties	21,480,706
Outstanding debt in Australia	\$923,041,061
Borrowed from British Government	231,158,750
Increase in foregoing amount owing to conversion operations by Brit- ish Government	7,699,070
Total war loans	1,161,898,881
Accrued deferred pay, Australian Imper- ial Forces to June 30, 1919	26,765,750
Indebtedness to Government of United Kingdom for maintenance, transport, and equipment of Australian Imperial Forces to June 30, 1919	180,786,948
Other public debt:	
Loans raised in London for the States for public works	81,513,875
Loans for Commonwealth, Works, land, loan redemption, etc:	
From notes fund	36,878,946
From sinking fund	1,455,132
From trust fund	21,759,922
Balance of Northern Territory loans taken over from State	11,840,720
Balance of Port Augusta to Oodna- datta railway loans taken over from State	8,560,188
Value of properties transferred from States	54,517,545
Total public debt of Commonwealth on June 30, 1919	\$1,585,425,723

In addition, the public debt of the States amounted to \$1,945,335,050, the annual interest charge being on this amount \$76,188,434. Certain debts are included in both Commonwealth and State debts, and when these are deducted the total of Commonwealth and State public debts amounted to no less than \$3,444,379,859, and the total annual interest bill to \$145,768,004.

The debts of the individual States are given below:

State	Redeemable in London	Redeemable in Australia
New South Wales	\$514,138,761	\$228,404,647
Victoria	211,889,659	175,962,541
Queensland	247,520,201	61,904,050
South Australia	118,944,058	99,019,984
Western Australia	148,003,686	57,868,784
Tasmania	47,498,256	25,915,849

The acting treasurer, referring to this debt in the course of his budget speech, said that in considering it it must be remembered that there were valuable revenue-producing assets which had been constructed out of loan moneys. The principal of these were the State railways, water-works, and other public works, which produced in 1917-18 a net income of \$48,425,877. This amount was available for the payment of interest. The States had sinking funds of \$55,707,345, and Commonwealth sinking funds amounted to \$10,240,099, the total being \$65,947,444. The public debt of Australia was being added to from time to time by State borrowing, and would be increased by about \$194,660,000, to be raised by the Commonwealth in 1919-20 for war and repatriation purposes. On the other hand, the Commonwealth borrowings this year would clear off the deferred pay of \$26,765,750 and would enable \$19,466,000 of debt to the Brit-

ish Government to be discharged. The net Commonwealth increase of debt would therefore be about \$148,428,250. In considering the debt to be added in this financial year it was important to remember that the increase would be set off largely by interest earning on reproductive assets. In the case of the States this set-off would represent practically the whole addition to the debt.

PENSIONS. Under the old age and invalid pensions acts, the rates were to be determined at the discretion of the commissioner but the amounts were not to exceed £32 10s a year, or the pensioner's whole income was not to exceed £58 10s a year. Qualifications are: Attainment of 65 years of age and residence in Australian territory for 20 years for old age pensions; and five years residence for invalid pensions. Under the maternity law of Oct. 9, 1912, a bonus paying a maximum of 5 pounds, was allowed for every child of white parents born in Australia. Disbursements for old age and invalid pensions in 1917-18 were £3,793,037. The maternity allowance for 1917-18 was £634,430. Old age pensioners in the Commonwealth on June 30, 1918, numbered 95,387; invalid, 29,112; total, 125,299. War pensioners, 104,602.

COMMUNICATIONS. The table below shows the length and the cost of construction and equipment of Commonwealth and State lines up to June 30, 1917:

State or Federal	Miles open	Cost of const. and equip. £	Gross receipts £	Working expenses £
N. S. Wales	4,487	72,006,621	8,380,084	5,915,860
Victoria . . .	4,128	55,652,275	5,952,719	4,285,456
Queensland.	5,214	86,476,000	3,881,967	2,994,187
S. Australia.	2,231	17,687,844	2,373,530	1,725,341
W. Australia	3,425	17,466,802	1,877,582	1,448,451
Tasmania. . .	581	4,913,895	840,505	289,186
Federal—				
Trans-Aus.	958	6,079,313	290,750	290,750
Oodnadatta	478	2,281,271	66,429	102,298
Federal Ter.	5	52,591	592	1,446
N. Ter.	200	1,664,370	28,695	39,771
Total . . .	21,642	214,279,982	28,042,653	17,092,246

GOVERNMENT. The Commonwealth of Australia is a federal state constituting a dominion of the British empire and consisting of six colonies or original States, namely: New South Wales, Victoria, Queensland, South Australia, Western Australia, and Tasmania, and of the Northern Territory which was transferred by South Australia to the Commonwealth on Jan. 1, 1911, and the Federal Territory which on the same date was transferred by New South Wales. Legislative power resides in a federal Parliament consisting of a Senate and a House of Representatives. The Senate consists of six senators from each of the original States, elected for six years; and the House of Representatives consists of twice as many representatives as there are senators, the representation by States being in proportion to population. On the basis of the census of 1911 the Representatives were as follows: New South Wales, 27; Victoria, 21; Queensland, 10; South Australia, 7; Western Australia, 5; Tasmania, 5. The executive power is vested in the King acting through a Governor-General appointed by him, who is assisted by an executive council of responsible ministers. The latter must be members of the federal Parliament. The Governor-General at the beginning of 1918 was Sir Ronald Craufurd Munro-Ferguson.

G. C. M. G. The coalition War Ministry as reconstituted on March, 1918, was as follows: Prime Minister and Attorney-General, W. M. Hughes; Minister for the Navy, Sir J. Cook; Public Works and Railways, L. E. Groom; Home and Territories, P. McM. Glynn; Postmaster-General, W. Webster; Minister of Defence, G. F. Pearce; Minister of Customs, M. Greene; Treasurer, W. A. Watt; Vice-President of the Executive Council, E. J. Russell; Minister for Repatriation, E. D. Millen; Honorary Ministers, A. Poynton, Mr. Wise, Mr. Orchard.

High Commissioner for Australia in London, Andrew Fisher (appointed Oct. 26, 1915).

There is a Parliament for each of the States, elected in the same manner by universal adult suffrage and having jurisdiction over all matters not transferred by the constitution to the federal Parliament. The executive power in each State is vested in the Governor who is appointed by the Crown and is assisted by a responsible ministry.

HISTORY

INTERNAL DISORDERS. On April 3rd riots were reported at Brisbane, Queensland, in which Russian Bolsheviks were said to have attacked soldiers and police. At this time a secret society was reported to be active in the country for the purpose of spreading Bolshevik views. In the summer of 1919 a series of strikes nearly tied up the industry of the country. It was reported that the Industrial Court was overwhelmed with cases, and to facilitate settlements the government created a new body known as the Government Workers' Tribunal.

PROPOSED REVISION OF THE CONSTITUTION. The question of constitutional revision arose in connection with the discussion of reconstruction. The Commonwealth government had exercised wide powers in war-time and the people were accustomed to the concentration of authority in its hands. On the financial side such concentrations appealed to them as offering the means of effecting economies. Extensive taxing powers had been exercised by the central government, thus drawing on the States' sources of revenue. The quota of 25 shillings per head of population to the States expired in 1920, and the Commonwealth treasurer proposed a scheme for the gradual reduction of the grant. The State governments, finding their revenues menaced, were concerned with plans of readjustment. The central fiscal policy occasioned grievances in several of the States. In Western Australia there were meetings in favor of secession on account of the discrimination against her and in favor of other States; and Tasmania complained that she had been deprived of her shipping. Quarantine regulations following the influenza interrupted inter-State traffic. This raised the question of the States' authority in the matter, in view of the provision in the Constitution for freedom of trade and intercourse among the States. Decisions of the High Court left the question open, and there was a tendency to favor the retention of extensive powers by the central government. Unification of power and a simplification of the constitution was favored in certain quarters, especially among members of the Labor party. On the other hand it was opposed by those who objected to a lessening of popular control and to the extinction of the States' authority.

LABOR UNION DIFFERENCES. The Workers' Industrial Union, commonly known as the "One Big Union," was weakened by internal dissensions and ill supported by the other unions, while from the Australian Workers' Union it encountered a determined hostility. About May 15th the latter published a manifesto rejecting its principles, condemning it as an imitation of the American I. W. W., and calling upon its own members to "devote their time and energy to advocating the principles of industrial unionism on sane lines suitable to Australian circumstances and conditions." The Victoria Railways Union and one or two other large organizations joined it but as a rule the labor bodies were distrustful or hostile, and it was denounced by leaders of the Labor party in Queensland, New South Wales, and Tasmania.

THE ELECTIONS. Returns on December 14th showed the Liberal and Nationalist Labor parties in possession of 35 seats in the House of Representatives and the Farmers' party of 11, all three being supporters of the government, while the Labor and other anti-government groups had secured only 29. William M. Hughes, the Premier and leader of the Nationalists and Liberals, was reelected to the House. See EXPLORATION; INDUSTRIAL WORKERS OF THE WORLD.

AUSTRIA-HUNGARY, formerly the Austro-Hungarian Dual Monarchy, but since November, 1918, only a geographical term, the component parts of the former empire having become divided and independent as indicated below. Previous to these changes the country consisted politically of the Austrian Empire, the Hungarian Monarchy, and the territory of Bosnia and the Herzegovina annexed to Austria Oct. 5, 1908. See below under *Government*.

AREA AND POPULATION. Recent figures for the separate states within the limits of the former Austro-Hungarian Monarchy are not available, and the following statistics are based on the census of 1910. The total area of the Dual Monarchy was 261,259 square miles, divided as follows: Austria, 115,882 square miles; Hungary, 125,609 square miles; and Bosnia and the Herzegovina, 19,768 square miles. The total population according to the census of Dec. 31, 1910, was 51,604,464, of which 28,818,928 was in Austria, and 20,886,487 in Hungary; and 1,898,044 in Bosnia and the Herzegovina. The following more recent estimate for Austria is taken from the *Statesman's Year Book* of 1919:

	Area in sq. miles	Population
German-Austria—		
Inner Austria	82,772	6,622,198
German Bohemia	5,049	2,051,108
German Moravia and Silesia...	2,806	647,245
Total	40,127	9,320,546
Bohemia and Moravia (Czech)...	18,705	6,632,484
Polish speaking territory	10,870	3,878,516
Ukrainian speaking territory	20,832	5,876,576
Rumanian speaking territory	1,979	836,922
Illyria (Southern Slavs)	13,884	2,339,142
Italian speaking territory	2,566	888,778
Trieste	34	190,013
Total	107,997	27,962,972

No later figures for emigration and immigration were available than those contained in the last and preceding YEAR BOOKS for the period before the war. About 44 per cent of the total population of the former monarchy was German-

speaking and Magyar-speaking, the rest consisting of diverse races, though for the most part of common Slavic stock. No later figures were available for distribution by language than those given in the last YEAR BOOK, which were based on the census of 1910, but they are repeated here for convenience. They show the population by language in 1910, with the exception of the military in Bosnia and the Herzegovina.

	Austria		Hungary Proper	
	No.	Per cent	No.	Per cent
German	9,950,266	35.58	1,908,357	10.40
Magyar	10,974	0.04	9,944,627	54.50
Bohemian, Moravian, Slovak..	6,485,988	23.02	.....	.....
Slovak .....	.....	.....	1,946,857	10.70
Polish	4,967,984	17.77	.....	.....
Ruthenian	3,518,864	12.58	464,270	2.50
Serbian and Croatian	788,834	2.80	656,324	3.60
Rumanian	275,150	0.98	2,948,186	16.10
Slovene	1,252,940	4.48	.....	.....
Italian and Ladin	768,422	2.75	.....	.....
Other	* 608,062	.....	401,412	2.20
Total	28,571,934	100.00	18,264,588	100.00

	Croatia and Slavonia		Monarchy	
	No.	Per cent	No.	Per cent
German	184,078	5.10	12,010,669	23.39
Magyar	105,948	4.10	10,067,992	19.60
Bohemian, Moravian, Slovak..	.....	.....	8,475,292	16.50
Slovak	21,613	0.80	.....	.....
Polish .....	.....	.....	5,019,496	9.77
Ruthenian	8,807	0.30	3,998,872	7.79
Serbian and Croatian	2,288,809	87.10	5,545,531	10.79
Rumanian	846	.....	3,224,755	6.28
Slovene .....	.....	.....	1,349,222	2.63
Italian and Ladin .....	.....	.....	804,271	1.57
Other	67,353	.....	860,865	1.68
Total	2,621,954	100.00	51,856,465	100.00

* Including foreigners, of whom about 300,000 Magyars.

The countries within the limits of the former empire are overwhelmingly Catholic. In the new state religious liberty is one of the fundamental laws. In the territories of the former kingdom of Austria there were seven archbishoprics in the Roman Catholic church and 23 bishoprics. There were also one Greek Ruthenian, and one Armenian archbishopric, and two Greek Ruthenian bishoprics; one Greek Orthodox archbishopric, and two bishoprics. The Protestant church had six superintendents of the Augsburg confession, three of the Helvetic, and one of the mixed. The following statistics date from the census of 1910 and are repeated from the preceding YEAR BOOK. They show the number of Roman Catholic, Greek and Armenian Catholics, Evangelicals, adherents of the Eastern or Orthodox church, Jews, and Moslems (exclusive of the military in Bosnia and the Herzegovina).

	Austria	Hungary	Bos. Herz.	Monarchy
R. Cath.	22,580,169	10,888,138	434,061	33,852,368
Gr. & Ar.	3,419,458	2,025,425	8,186	5,453,102
Evangel.	588,686	3,961,472	6,342	4,556,500
Orthodox	667,065	2,987,163	825,418	4,479,646
Jews	1,313,687	932,458	11,868	2,258,013
Moslems	1,446	.....	612,137	613,583
Others	51,428	91,748	82	143,253
Total	28,571,934	20,886,487	1,898,044	51,856,465

The principal towns in Austria according to the estimates of June 30, 1914, in thousands, are

given in the following table taken from the *Statesman's Year Book* of 1919.

Vienna	2,149.8	Kolomea	45.7
Prague and environs	541.5	Laiibach	43.4
Trieste	246.5	Aussig	40.0
Lemberg	212.0	Drohobycz	40.0
Krakau	171.0	Mährisch Ostrau	39.1
Graz	156.5	Tarnów	38.7
Brünn	131.8	Salzburg	37.8
Czernowitz	94.0	Reichenberg	37.1
Pilsen	84.8	Tarnopol	35.2
Linz	70.9	Stanislaw	34.4
Pola	59.3	Wiener Neustadt	34.2
Innsbruck	57.3	Prossnitz	34.1
Przemysl	57.0	Stryj	33.4
Budweis	46.3	Görs	32.6
		Troppau	32.3
		Trient	31.5

The population of the chief towns in Hungary is shown in the following table taken from the *Statesman's Year Book* of 1919.

Budapest	880,371	Kassa	44,211
Szeged	118,328	Békéscsaba	42,599
Szabadka	94,610	Brassó	41,056
Debrecen	92,729	Nyiregyháza	38,198
Zágráb (Zagreb, Agram)	79,098	Székesfehérvár	36,625
Pozsony	78,223	Kiskunfélegyháza	34,924
Temesvár	72,555	Makó	34,918
Kecskemét	66,884	Szatmár-Németi	34,892
Nagy-Váradi	64,169	Cegléd	33,942
Arad	63,166	Sopron	33,932
Hódmező-Vásárhely	62,445	Mividek	33,590
Kolozsvár	60,808	Nagyseben	33,489
Ujpest	55,197	Szentes	31,593
Miskolc	51,459	Eszék (Osiek)	31,388
Pécs	49,822	Erzsébetfalva	30,970
Fiume	49,806	Szombathely	30,947
Győr	44,800	Zombor	30,593
		Kispest	30,212

EDUCATION. In both Austria and Hungary elementary instruction is free. School attendance is compulsory in Austria as a general rule between the ages of 6 and 14 and in Hungary between the ages of 6 and 12. In 1912 in Austria there were 23,247 elementary schools with 107,374 teachers and 4,471,303 pupils; children of school age numbered 497,724. Secondary education in Austria is provided in the gymnasia and realschulen, of which in 1915-16 the former numbered 376 with 84,907 pupils, and the latter 148 with 44,220 pupils. The gymnasia for girls numbered 40 with 4818 pupils. In 146 of the gymnasia German was the language of instruction; in 73 Bohemian; in 107 Polish; and in 16 Ruthenian. There were 75 lyceums for girls with 10,528 pupils. The seven government technical high schools of Austria with the number of teachers in 1913-14, and the number of students in 1913-14, and in 1915-16 are shown in the following table:

	Teachers		Students	
	1913-14	1913-14	1913-14	1915-16
Vienna	188	3,177	639	
Prague { Bohemian	86	900	146	
Prague { German	151	2,817	848	
Lemberg	96	1,791	167	
Brünn { German	102	924	115	
Brünn { Bohemian	73	569	138	
Graz	54	814	80	
Vienna agr. high school	86	1,185	186	
Total	833	12,127	2,314	

There are eight universities in Austria. The number of teachers and students in 1916-17 are shown in the table below:

Universities	Teachers	Students
Vienna, German	688	3,940
Prague { German	174	724
Prague { Bohemian	249	2,302
Graz, German	168	853
Cracow, Polish	195	1,854
Lemberg, Polish	186	1,223
Innsbruck, German	115	671
Czernowitz, German	67	....

Besides these, plans were made for a new university at Salzburg.

In Hungary in 1912 there were 2885 infants' schools with 252,756 infants; the pupils in the elementary schools numbered 2,475,777. Of the school children, 1,083,959 were Magyar. In 1912-13 there were 197 gymnasia with 3877 teachers and 65,554 pupils; 49 realschulen children, with 776 teachers and 11,351 pupils. There were five universities maintained by the state, each with the four faculties of theology, law, medicine, and philosophy, with the exception of the university of Zagrab (Agram) which had no faculty of medicine. The latest figures available for the universities are as follows: Budapest, 429 teachers and 7808 students; Kolozsvár, 156 teachers and 2343 students; Zagrab (Agram), 101 teachers and 1047 students. For the other two universities, namely, those of Pressburg and Debrecen, no figures are available.

FINANCE. In Austria the budget estimates for the fiscal year 1917-18 were given in detail in the preceding YEAR BOOK. The totals are as follows in thousands of crowns. Expenditures, 22,169,662; revenue, 4,194,082. For 1918-19 they were as follows: Expenditures, 24,321,140; revenue, 4,854,789. The provisional government of the republic empowered the minister of finance on Nov. 28, 1918, to supply the deficit in the 1918-19 budget by means of credit operations. The special debt of Austria, Feb. 13, 1918, was 54,081,765,681 crowns, of which 29,274,603,300 crowns were the war debt. The entire interest charged on the total debt was 2,195,106,214. A special debt commission was appointed by the provisional government on Nov. 20, 1918, for the control of the public debt. The war loans of Austria were eight in number and as follows in millions of crowns. November, 1914, 2201; May, 1915, 2688; October, 1915, 4203; May, 1916, 4520; December, 1916, 4467; May, 1917, 5189; November, 1917, 6044; July, 1918, 5763. Total, 35,075.

In Hungary the budget estimates for 1917-18 in thousands of crowns were: Expenditures, 3,442,678; revenue, 4,468,903. The debt of Hungary on Dec. 31, 1916, was placed at 16,170,000,700. Hungary's eight war loans in millions of crowns were as follows: November, 1914, 1175; May, 1915, 1132; October, 1915, 1970; May, 1916, 2000; December, 1916, 2300; May, 1917, 2500; November, 1917, 3600; July, 1918, 3860. Total, 18,537.

ARMY. Figures for the Austro-Hungarian army before the war will be found in the preceding issues of the YEAR BOOK. Exact figures for 1919 were not available, but the following items dating from 1918 and from the period succeeding the armistice give some indications. In the summer of 1918 the regiments of Czechs, Poles, and Ruthenians were ordered to be abolished. The men were to be distributed among other corps in such a manner that the Magyars and Germans would greatly outnumber the members of these nationalities, whose loyalty was doubtful. It

was estimated in June that 40 divisions were engaged in Italy. By July 8th, after the Italian victory, the total casualties were placed at 100,000. In September, 1918, 61 divisions were reported on the Italian front, 15 in Ukraine, 8 in France, and 4 in Albania; and during the October offensive in Italy 63 divisions were reported to

3 battleships, 3 light cruisers, 9 destroyers, 12 torpedo boats, 1 mine-layer, and 6 Danube monitors should be given up to the Allies. The following table showing the chief vessels of Austria-Hungary at the time of the fall of the monarchy is taken from the *Statesman's Year Book* of 1919.

First of class laid down	Name	Displacement Tons	Water-line armor, inches	Armor on guns	Principal armament	Torpedo tubes	Indicated horse power	Nominal speed
DREADNOUGHTS—								
1910	{ Teggethoff Prinz Eugen	20,300	11	11	12 12-in., 12 6-in.	8	25,000	20 11
PRE-DREADNOUGHTS—								
1899	{ Habsburg Arpad	8,300	8 ¾	8 ½	3 9.4-in., 12 6-in.	{ 2 2	15,000	19
1901	{ Erzherzog Karl Erzherzog Friedrich Ers. Ferdinand Max Ers. Franz Ferdinand	10,600	8	9 ¾	4 9.4-in., 12 7.6-in.	2	18,000	20
1907	{ Radetsky Zrinyi	14,500	9	10	4 12-in., 8 9.4-in.	3	20,000	20
CRUISERS (armored)—								
1896	Kaiser Karl VI	6,300	9	8	2 9.4-in., 8 6-in.	4	12,800	20:0
1901	St. Georg	7,300	8	8	2 9.4-in., 5 7.6-in., 4 6-in.	1	15,000	22:0
CRUISERS (protected)—								
1896	{ Aspern Szigetvar	2,400	deck	—	8 4.7-in.	—	7,200	20
1908	Admiral Spaun	3,500	2 ½	—	7 4.1-in.	—	20,000 (t)	26
1911	{ Saída Helgoland Novara	3,500	2 ½	—	9 4.1-in.	—	25,000	27

be engaged. The failure of these operations resulted in loss as prisoners of about 700,000 of all ranks together with 6816 guns, and vast quantities of stores. Upon the signature of the armistice, Nov. 11, 1918, the army was dissolved, and the troops formed parts of the national forces of the new states that arose on the ruins of the empire. In Hungary, after the armistice, a new army of volunteers was organized, the men engaging to serve at least six months, and on March 22, 1919, thirty-six battalions were reported as organized and equipped, and the total forces under arms at that time were placed at 54,000. The casualties during the war were estimated at 4,500,000, including about 1,000,000 killed.

NAVY. The fleet of the Austro-Hungarian Empire during the war was rendered inactive by the blockade of the French, British, and Italian force, but there was some sporadic activity, as for example, the coöperation of cruisers with the army in occupying Montenegro, and some more or less successful submarine operations. Austrian war vessels attempted to check the Italians and Serbs when the former landed in Albania, and when the latter withdrew their army. An extensive operation planned in June, 1918, for the attack upon the Allied fleet from Cattaro as a base came to nothing. Mutinies were reported at Pola, and when negotiations for the armistice were pending, it was said that the government was on the point of handing over the whole fleet at Pola to the new Jugo-Slav state. The distribution of the fleet rested with the Peace Conference. The last serious casualty occurred during the overtures for the armistice when an Italian mine sank the *Viribus Unitis* in Pola harbor. The armistice conditions provided that

GOVERNMENT. The disruption of the old Austro-Hungarian Monarchy began in October, 1918. The independence of Czecho-Slovakia was proclaimed on October 20th, and on October 21st the National Assembly of the Germans in Austria declared their independence, as a German-Austrian state. On October 23rd, Austrian Ukraine proclaimed its independence. On Oct. 30, 1918, the southern Slav states proclaimed their independence at a national council of Slovenes, Croats, and Serbs; and on October 31st, Hungary proclaimed her independence. Within the limits of the former empire therefore, five new states had declared their independence before the close of the year 1919, namely: German Austria, Hungary, Austrian Ukraine, Czecho-Slovakia, and Jugo-Slavia. For the last two, see their respective titles. The ministries are given for Austria and for Hungary for the first part of the year in the two succeeding paragraphs. Further details will be found under *History*.

AUSTRIA. As noted above the National Assembly of the Germans proclaimed the independence of German Austria on October 21st. This was followed on Nov. 12, 1918, by the proclamation of the German-Austrian Republic. Its government was in the hands of a National Assembly which appointed a provisional cabinet and arranged for an election to a National Constitutional Assembly. This election was held on February 16th on the basis of universal suffrage, and the new Assembly, consisting of only one Chamber, was composed as follows: Social Democrats, 70; Christian Socialists, 64; Liberals, 23; others, 5. The ministry appointed by the Constituent Assembly on March 15, 1919, was as follows: State Chancellor and Minister of the Interior, Dr. Karl Renner (Social Demo-

crat); Vice-Chancellor, Dr. Ender (non-party); Minister of Commerce, Dr. Wilhelm Ellenbogen (Social Democrat); Minister of Social Insurance, Ferdinand Hanusch (Social Democrat); Minister for Military Affairs, Dr. Julius Deutsch (Social Democrat); Minister for Socialization, Dr. Otto Bauer (Social Democrat); Minister of Agriculture, Joseph Stöckler (Christian Socialist); Minister of Finance, Dr. J. Schumpeter (non-party); Minister of Justice, Dr. Felix Mayer (non-party); Food Controller, Dr. Johann Löweafeld-Russ (non-party); Minister of Foreign Affairs, Dr. Franz Klein (non-party); Minister of Railways, Dr. Ludwig Paul (non-party).

HUNGARY. The Hungarian People's Republic was proclaimed Nov. 16, 1918, and the Provisional President was Count Michael Karolyi. In place of the two houses of Legislature which were abolished, the new provisional National Assembly was established under pledge to provide by legislation for universal suffrage, secret ballot, freedom of the press and association, the jury system, and apportionment of land among peasants. On March 22nd the Karolyi ministry resigned on account of the attitude of the Allies in regard to the boundary (see below) and was succeeded by a Bolshevik ministry on the platform of a proletarian dictatorship, a military alliance with the Russian Soviet government, and the establishment of Socialism (see below). It was formed by the Budapest Workmen's Council, and after its installation issued proclamations embodying the above programme. It was constituted as follows: President, Alexander Garbai; People's Commissioner for Home Affairs, Eugen Landler; People's Commissioner for Finance, Bela Székely; People's Commissioner for Education, Siegmund Kunfy; People's Commissioner for Foreign Affairs, Bela Kun; People's Commissioner for Agriculture, Eugen Hamburger.

One of its next acts was the abolition of ranks and titles and separation of church and state.

HISTORY

GERMAN AUSTRIA. The newly formed Republic of German Austria transmitted through its provisional government to the diplomatic corps in Vienna a note early in January expressing the hope that it would be recognized by all civilized nations. On February 16th the elections for the National Constituent Assembly were held. In these the Socialists received a vote of 1,210,000 out of a total of about 3,000,000 votes cast; Christian Socialist party, 1,039,000; various groups of German Nationalists, 593,000; the rest cast for pro-Bavarian, Czecho-Slovak and Jewish National factions. The Assembly chose as President Herr Seitz, and the cabinet was appointed on March 15th with Dr. Karl Renner as Chancellor and Otto Bauer as Secretary of Foreign Affairs. The German Nationalists refused to accept portfolios. The policy of the government, in the main conciliatory, attempted to socialize industry, to improve the conditions of the peasantry and bring about coöperation between the productive workers of town and country. In all its policy whether domestic or foreign it was hampered by internal troubles especially owing to the spread of Bolshevik doctrines, and the scarcity of food and unemployment. As a result a revolt broke out in the

spring and early summer, culminating in a great Communist demonstration in Vienna on June 15th. This was put down, but popular discontent still continued. After the terms of the Austrian treaty became known this discontent was intensified. The economic and territorial provisions of the treaty caused great indignation. The plan for the union with Germany had been popular at first but encountered opposition from the Allies and as time went on its advocates began to realize the heavy burdens upon the country which it would involve. Finally the support died down. Diplomatic difficulties with Soviet Hungary developed in July which resulted in the demand that the Hungarian Minister, Czobel, be recalled.

HUNGARY: THE KAROLYI GOVERNMENT. The arrangements with the Allies did not protect Hungary from the aggressions of their Balkan neighbors. The Karolyi government had formed in the closing months of 1918 an armistice with the French general in command fixing a line beyond which no belligerent was to advance. In spite of this agreement the Rumanians and Serbs advanced into Hungarian territory while the Czechs occupied Slovakia and the Danube district. These activities cost Hungary the loss of the Banat region which was important as a source of food supply and she also lost the region containing the coal mines of the north upon which she was depending for her industry. There was much distress on account of the lack of food in the middle of January and popular discontent brought about a crisis in Budapest. It was generally believed that the Karolyi government was incompetent to solve the serious social and economic problems. Moreover Bolshevism was fast spreading. Finally a Communist revolt under the leadership of the extremist Bela Kun broke out with such violence that the government declared martial law and used military force to regain parts of the capital that had fallen into the hands of the revolutionists. The hand of the Karolyi government was not strengthened by the boundaries established by the Inter-Allied Supreme Council between Hungary on the one hand and Rumania, Serbia, and Czecho-Slovakia on the other. They were regarded as most unfair to Hungary. Moreover the intention of the Allies to subject Hungary to military occupation caused trouble. In March discontent was increased by an order issued by the Peace Conference commanding the Hungarians to withdraw to the Rumanian boundary as fixed by the Russian Treaty of 1916 and at the same time a neutral zone was established on the Hungarian-Rumanian frontier, 140 miles long and 40 miles wide, to be occupied by Allied troops. After this came the announcement on March 22nd that the Allied troops had occupied the larger part of Hungary in order to suppress plundering bands of Bolsheviks. Failing in an attempt to secure better terms from the Allies on the one hand and confronted by economic disasters on the other, the Karolyi government saw no prospect of success and on March 22nd Karolyi announced the resignation of his moderate cabinet and at the same time issued a proclamation appealing to the proletariat of the world for justice and support. As noted above under *Government*, a new ministry was immediately formed under Alexander Garbai as President, and Bela Kun as Minister of Foreign Affairs. This new Soviet govern-

ment was entirely dominated by the Bolshevik element, headed by Bela Kun. The change caused much anxiety among the Allies following as it did upon the threat of the head of the German government, Herr Ebert, addressed to the Peace Conference that undue severity would cause Germany to open the door to Bolshevism. Down to that time Count Karolyi had pursued a somewhat advanced Socialist policy tending toward communism. He had decreed the division of the great estates for example. On the other hand, he had opposed with energy the radical communists, who wished to carry out the programme of the Soviet government of Russia. Agents from Moscow had been for some time past engaged in propaganda work in the country. With these Bela Kun was reported to be in sympathy, and by some he was considered one of the chief agents of Lenine. According to Bela Kun the communists aimed at a new revolution and the overthrow of the present government, and had purchased arms and distributed them among the masses. One of the leaders declared that the Russian Bolsheviks arrested at Budapest some weeks before, and later interned by the Allied mission, had 12,000,000 rubles at their disposal. It appeared that the Hungarian communists were in regular communication with the Soviet government of Russia, having a special mail service between Budapest and Moscow, and that they were supplied with Russian money. Russian Bolshevik agents were also reported at Vienna, Agram, and Prague. In turning over the government to this group, the President, Count Karolyi, said he was actuated by nationalist motives. He rejected the territorial arrangement proposed by the Allied mission, and refused to associate his government with an aggressive movement starting from Hungarian territory against the army of the Russian Soviet government. He also protested against the cession to the Czechs of lands formerly belonging to Hungary, and declared that he would appeal from the Peace Conference to the proletariat of the world. In certain quarters where everything that was difficult to explain was attributed to a German plot, this was said to be the result of Herr Ebert's realization that while he could not deliver his own country over to the Bolsheviks, he might threaten the Conference by forcing Austria to take that course. Karolyi's reference to the territorial acquisitions of the Czechs was regarded as a threat that serious results would follow the yielding to the Czechs and Poles at the expense of Germany. In all this the hand of the new German government was seen. The German press declared that the imperialism of the Entente was responsible for this Bolshevik triumph in Hungary, and that the Allies ought to give heed to the terrible warning. This attitude of the press was taken as a sign that Germany was behind the movement. The problems raised by this Bolshevik triumph were serious. The Entente Powers were said to be on the point of taking military measures against Hungary, where two divisions of French troops were already settled. On the other hand, there was difference of opinion in regard to such a course, and it was pointed out that the chief danger was in Russia.

THE BOLSHEVIST REVOLUTION. Hungary thus became a Soviet republic at once and a revolutionary government council proclaimed the

socialization of large properties, mines, large industries, banks, and other commercial institutions; and land reform by means of socialistic production and trade unions. At the same time the government gave assurance that it would enforce an iron discipline with death penalties for all who threatened counter-revolutionary movements. It was announced that proletariat armies would be organized against the Hungarian capitalists and land-owners, as also against the Rumanian enemy, and in conclusion the council declared itself at one with the Russian Soviet government in ideals and in spirit, offered that government a military alliance, sent greetings to the workingmen of the Allied Powers, and implored the workingmen of the Central Powers to break definitely with Paris and to ally themselves with Moscow. The movement was accomplished with comparatively little trouble. Upon the news of Count Karolyi's resignation in Budapest, troops appeared in the streets and the shops were closed. The troops advised the people to go indoors and this advice was taken. Foreign officers were disarmed and their decorations removed, being informed that distinctions of rank no longer existed. Sailors with machine-guns began to occupy the streets, and detachments of British and French troops were disarmed. The revolutionary government council held its first meeting March 22d, and decided to abolish all ranks and titles, to separate church from state, and to abolish taxes for church purposes. The People's Commissaries for education, agriculture, and finance were called upon to work out a programme at the earliest possible moment and a committee of five was appointed to prepare for the election of Workers', Soldiers', and Peasants' Councils.

In Austria there were signs of warm sympathy with Hungary and among the working classes regret was expressed that, on account of the shortage of supplies and the dependence upon the Allies for food, they were unable to follow the example of Hungary. Early in the revolution a message of greeting was received from Lenin which said the results had been welcomed in Russia with the greatest enthusiasm. In Germany the effect of the news was at first greatly to encourage the extremists. On the other hand it gave the reactionary parties a chance to warn the Allies against driving Germany to extremes.

THE HUNGARIAN SOVIET GOVERNMENT. The Soviet government carried on almost continuous warfare with Rumania, Jugoslavia and Czechoslovakia, all of whom dispatched troops into Hungarian territory. On April 2nd General Smuts was sent by the Peace Conference to Budapest to negotiate a new armistice. In May the Hungarian troops won numerous successes especially against the Czechs, but after an appeal of President Masaryk of Czechoslovakia to the Peace Conference for help, the Allies on June 9th threatened extreme measures to oblige Hungary to cease hostilities. Nevertheless the attacks by Hungary continued and the Allies afterwards attempted to draw a more complete economic and military circle around the country. In the three months following these events a spirit of counter-revolution showed itself throughout the country.

THE FALL OF BELA KUN. Various versions of the downfall of the communist government in Hungary were published, all tinged more or less

by the bias of the writers. An exact report of events was not available. The following account based on the report of travelers agrees in essentials with many others. One of the chief causes of weakness in the new régime was the antipathy to the Jews. In the country districts the feeling was widespread that the revolution had been a movement on the part of the Jews to seize the power for themselves, and the remark was frequently heard that if the Jews of Budapest died of starvation so much the better for the rest of the country. The government of Bela Kun was composed almost exclusively of Jews who held also most of the administrative offices. The communists had united at first with the Socialists who were not of the extremely radical party, but resembled somewhat the Labor parties or the trade unionist groups in other countries. Bela Kun did not, however, select his personnel from among them, but turned to the Jews and constituted virtually a Jewish bureaucracy. This gave rise to a formidable spirit of anti-Semitism, and the Socialists themselves encouraged this spirit. The Jews to avoid odium had themselves baptized in large numbers—some 80,000 in two months it was said. The opinion spread that communism was only a sort of Jewish conspiracy to subdue the Christian world, and the policy of the government did not remove this prejudice, but strengthened it rather by its severe course toward the church. It appropriated church property, secularized the congregations, forbade the wearing of clerical vestments, and threw bishops and other church dignitaries into prison. All of these acts were exploited by their enemies with great effect. For example, it was said that anti-Semites on a religious holiday employed agents to desecrate objects of worship and incite to riot, which acts of violence were then attributed to the government. Then the ministry of Bela Kun pursued an unpopular school policy. It introduced co-education and forbade religious teaching. It was also accused of inculcating lax morality among the young and making marriage and divorce so easy that the result was practically a system of free union. The communists were also accused of preaching the doctrine of free union. Moreover, it was said that pupils were constrained to attend courses in which the doctrines of communism were preached. These mistakes or excesses in the moral domain gave the final blow to the system. So long as communism stayed within the economic field alone, it had sympathy even in conservative quarters where there was resentment against the excesses of the rich classes. But the moment it tried to break up the institution of the family and change the moral outlook of the people it found the masses against it. Thus it fell from power sooner than it would have fallen if it had adhered exclusively to an economic programme, although even in the latter case it was not believed by most observers according to the reports in the press that the system would have lasted long.

GOVERNMENT OF THE ARCHDUKE JOSEPH. At the end of July the Bela Kun government was displaced by the more moderate Socialists under Julius Pethö. The Rumanian troops arrived at the suburbs of Budapest, August 3, and the war minister of the new Hungarian government informed the Rumanian general that the Red army would be immediately disbanded. At the same

time it was given out that the Allies would send a force of 5000 men at the request of the Hungarian government. The communists had made a slight resistance to the new régime and there had been some disturbances in the streets. The newspapers of the Allies saw in this the chance to insure an established and orderly government and declared that the Rumanians were in Hungary as the gendarmes of civilization. The new government sent word to the Conference that it would accept an armistice and asked each of the powers to send a regiment to its aid. The Rumanians declared that they would not occupy the city but would remain in the outskirts. On August 5th, however, it was announced that they had taken possession of the public buildings and assumed military control of the city. The Conference decided to send at once a military commission to inquire into the situation with a view to an armistice. The American members of the delegation were disturbed by the entry of the Rumanians, but the others, especially the French, appeared to be satisfied. The Conference had meanwhile sent an order to the Rumanians to remain outside the city. The latter, whether or not through a misunderstanding, not only disregarded that order, but delivered immediately an ultimatum to the Hungarian government demanding the acceptance by 10 o'clock the next evening (August 6) of the following terms among others: Surrender of 30 per cent of the harvest, farm animals, and farm tools, and 50 per cent of the rolling stock; reduction of Hungarian army to 15,000 men; and the equipment for an army of 300,000 men. This was followed by reports that the Rumanians were requisitioning Hungarian property on all sides and practically stripping the country bare. They were condemned in many of the Allied papers as defying the Conference—in which they had ceased to take part since Premier Bratiano had refused to admit the decision of the Conference in respect to the rights of national minorities. On August 7th a new *coup d'état* was announced resulting in the choice of the Archduke Joseph as governor of state and Herr Friedrich as premier. The Social Democrats had been forcibly expelled and some of them arrested, but there were no public disorders. The Allied mission in Budapest accepted the new government, but there were immediate protests both in and out of Hungary against the return to power of reactionaries. Mr. Hoover, the American Food Controller, for example, issued at once a widely circulated appeal against admitting a member of the Hapsburg family to the head of affairs. Finally even the leading Paris newspapers took this view. Meanwhile the Archduke had declared himself a true Democrat, said he had no intention of becoming king, that he would hold office only till Parliament should express itself after the elections. On August 9th the newspapers announced that the Supreme Council of the Peace Conference had sent notes to M. Bratiano asking Rumania to arrest the advance of her army, saying that the Allies did not recognize her armistice with Hungary, and expressing the hope that she would act in friendly coöperation with the Supreme Council. The attitude of Rumania was attacked in many of the Allied newspapers as showing a cynical indifference to the wishes of the Supreme Council. It was also taken as a sign of the impossibility of setting

up an effective League of Nations. An American newspaper said that nothing showed better the contempt of Europe for a League of Nations than the course taken by Rumania with impunity. The Archduke declared that it was impossible to say whether Hungary would be a republic or a monarchy; and that it was a question for the Constituent Assembly to decide.

FALL OF THE ARCHDUKE'S GOVERNMENT. Finally after many conflicting rumors the Supreme Council dispatched a note to Budapest saying they could not recognize the present government, which had at its head a member of the Hapsburg dynasty that had brought so much suffering to the world. Elections held under such a government would not express the will of the people. The Council called upon the Archduke Joseph to resign. On the following day he and his cabinet resigned.

CONSERVATIVE GOVERNMENT IN HUNGARY. Though the Archduke's government fell, a government was formed by his Prime Minister, Friedrich, who represented the forces of reaction and was accused in the Liberal press of substituting a "White" terror for the Red one. The so-called White army under the command of Admiral Horthy entered Budapest and the Admiral in his address to the mayor declared that he and his followers hated the city for having trod the "Crown and national colors in the dust" but that they would forgive it if it returned "to the Hungarian fatherland and loved once more the Crown and the double cross." The Prime Minister in the presence of Counts Apponyi, Andrássy, and other conservative politicians, publicly thanked the Admiral, who later in an interview with the press declared himself "unreservedly a Royalist." The representative of the Supreme Council of the Allies secured the resignation of Premier Friedrich, and a new ministry was formed under Mr. Huszar, in which Herr Friedrich was war minister. Among its personnel were others identified with Clerical or reactionary interests.

CONDITIONS AT THE CLOSE OF THE YEAR. The Austrian Minister of Railways decided in a conference on December 27th that the passenger trains should cease to run until January 2. This was due to the lack of coal. At the same time the food supply was reported to be low and conditions were said to be growing steadily worse. The country was said to be manufacturing practically nothing and its banks were making serious difficulties which were also increased by the state of the currency. Paper notes were circulating but still depreciating in value. All enterprises owned by the state were said to be showing a deficit. The resources of the country were struggling under the enormous demands made upon them as a result of pensions to the unemployed and the need of food. The peasants were said to be charging enormous prices for their food and to be hoarding their money with the result that the government was required constantly to issue new notes. Great distress prevailed on account of the food shortage. The American Mission of Relief for Children reported that ninety-seven per cent of the children in the schools were suffering from lack of food. See **WAR OF THE NATIONS; NAVAL PROGRESS.**

It was announced on December 30th that the Hungarian government intended to make a strong effort in Paris for the recovery of some of the territory that had been taken from them.

A peace delegation was appointed and Count Apponyi was named as its chief. He declared that the Hungarians deeply regretted the withdrawal of America, because the United States had pledged itself to principles which alone could bring about peace in Europe. The delegation intended, he said, to demand a plebiscite in the territories taken from Hungary. Many millions of Hungarians were suffering under the yoke of Rumanians, Serbs, and Czechs, and the delegation would demand that the people in these transferred territories decide their own fate.

THE ALPINE PROVINCES. After the October (1918) revolution in Austria-Hungary, there was a movement in Vorarlberg for absorption in Switzerland. Its opponents were equally adverse to union with Austria, but favored annexation to Württemberg where the same dialect of German is spoken. In 1919 the Vienna government inclined, out of pan-German sympathies, toward the latter group. The same tendency toward union with Germany was manifested in the former Austrian crownland of Salzburg. In both provinces the movement was furthered by the food crisis. In Tirol where the food situation was less acute, there was a tendency toward independence of Austria, but not toward union with Germany except on the part of the Socialists, who represented only about one-fifth of the voters.

AUTHORS' LEAGUE OF AMERICA. The largest organization of authors in the United States, this association was formed to protect their interests and others engaged in the production of books or works of art that are susceptible of copyright. It renders business advice to its members, but does not take legal action. It provides confidential information in regard to publishers, managers, and others engaged in the sale or exhibition of material that is copyrightable.

The seventh annual meeting was on Apr. 8, 1919, at which time a report from the Programme Committee was presented and accepted. An endeavor is being made to increase the individual interest of each member in the League and its work. One of the means suggested was a monthly meeting to be held in New York for the discussion of current literary interests. Further, the League shall assist in the establishing of state and city literary organizations, the nucleus of which shall be a group of League members. It was also suggested that an attempt be made to secure better literary criticism in America, raising the standards of literary criticism and securing for American books the attention undoubtedly due them. To this end a world-wide propaganda, conducted by the League, on behalf of American literature was launched during the past year.

Allied to the League is the Authors' League Fund which was organized by the League, but constitutes a separate corporation. Its object is to furnish assistance to authors and others who are in temporary financial difficulties. The officers of the League Fund in 1919 were: President, Ellis Parker Butler; vice-president, Mrs. Gertrude Atherton; secretary and treasurer, Eric Schuler; honorary counsel, B. H. Stern; honorary accountant, Richard T. Lingley. The officers of the League in 1919 were: President, Rex Beach; vice-president, Booth Tarkington; secretary and treasurer, Eric

Schuler; counsel, B. H. Stern; consulting accountant, Richard T. Lingley.

AUTOMOBILES. The motor vehicle and motor truck industry in 1919 had to experience considerable readjustment, and as in the previous year many plants were engaged more or less, or even exclusively, in war work. As a result it required some time for the various factories to return to the pre-war basis, but they found an active demand for all classes of cars and trucks, and by the end of the year production was going forward on approximately the 1917 rate of about 2,000,000 cars and trucks per annum, the latter amounting to about 12 per cent in the grand total. The production for 1919 was stated at a total of 1,891,929 cars and trucks, which exceeded the previous record of 1,868,000 cars and trucks turned out in 1917, and the value of the product almost reached the stupendous total of \$2,000,000,000.

According to the statistics of the National Automobile Chamber of Commerce American passenger car production in 1919 was slightly less than in 1917, totaling 1,586,787, as against 1,740,000 for 1917. The truck production, however, increased substantially, rising from 227,000 in 1918 to more than 305,000 in 1919.

The total wholesale value of passenger cars was \$1,399,282,995, an average of \$882 per car; while the truck value was \$408,311,585, an average of \$1338 per vehicle.

The total wholesale value of these products was estimated at \$1,807,594,580, which when combined with the wholesale value of bodies, spare tires and accessories to equip the cars or trucks ready for the owners' use brings the industry close to the two billion class. With the increased facilities for production along with the growing demand for motor vehicles of all types it was considered a practical certainty that the motor industry in 1920 would be second only to steel among the manufacturing industries of the country.

The full significance of the importance of the motor vehicle industry in 1919 can best be appreciated by reference to the accompanying comparative statistics:

PRODUCTION FIGURES OF THE AUTOMOBILE INDUSTRY

PASSENGER CAR PRODUCTION		
Year	Number	Wholesale value
1899	3,700	\$4,750,000
1904	21,281	28,684,361
1909	127,731	159,918,506
1914	548,679	413,859,379
1917	1,740,792	1,053,505,781
1918	926,888	801,937,925
1919	1,586,787	1,399,282,995

Average wholesale price for 1919, \$882.

MOTOR TRUCK PRODUCTION		
Year	Number	Wholesale value
1904	411	\$946,947
1911	10,655	22,292,321
1917	128,157	220,982,668
1918	227,250	434,168,992
1919	305,142	408,311,585

Average wholesale price for 1919, \$1,338.

A survey of manufacturing facilities and conditions at the end of 1919 indicated that the capacity of American plants was such that passenger car production in 1920 would be not far from 2,250,000 cars, with truck production 400,000 to 425,000, depending largely on materials, particularly in connection with closed cars, for

which the demand was increasing tremendously.

In 1919 the exports were only \$110,000,000, but this was expected to increase materially as the world's markets were being covered by the automobile industry, American automobiles going in 1919 to 81 different countries, including Iceland, which bought 21 cars and two trucks.

An estimate of 7,602,000 automobile passenger cars and commercial cars officially listed throughout the United States on Dec. 31, 1919 was made, and when compared with 6,225,192 cars at the end of 1918 indicated an increase of 22 per cent. In the year's registrations it was stated that commercial trucks would run but slightly below 300,000. The extent to which the automobile figured in national life is shown by the fact that in 1919 the total revenue from licenses in 48 states and the District of Columbia would amount to over \$50,000,000. In some States the total revenue from licenses goes back to the road while in others it aids materially in their upkeep and extension.

The biggest percentage of increase in the registration of cars during the years 1918 and 1919 was in the agricultural districts. The leaders were Tennessee, Alabama, Louisiana and Georgia, where the percentage of increase over 1918 ranged from 29 per cent down to 16 per cent. New York has the greatest number of cars registered, approximately 570,000, or one for every 18 people in the State. Ohio was second with about 511,000. The distribution of these registration figures as made by the Secretary of State is given in another column.

Nebraska and Iowa practically shared the honor of the greatest number of cars per capita, Iowa with 365,000 and Nebraska 201,000, or one car for every six and one-half persons.

Mississippi had the fewest cars registered, less than one for every 50 persons, with Alabama next—one for every 43 persons.

At the close of the year it was an interesting question, both economic and practical, how many more cars the United States would absorb. There was a normal annual replacement of about 16 per cent of the cars in use, but the demand continued in new sections and new industries. According to competent authority this situation as to just how many cars can be used in the United States depends entirely on the improved roads and bettering the traffic conditions in the big cities by the use of underground garages and parking places for cars not in use. With continued demands and proper roads and facilities, it was thought that within a very few years there would be 12,000,000 motor vehicles running in the United States.

Reference has been made to the supremacy of the State of New York in the number of automobiles as the Empire State in automobiles throughout the country. The year 1919, up to December 1, showed an increase over 1918 of more than 21 per cent in registrations. The total number of cars licensed up to Dec. 1, 1919, was 560,811, the figures for the corresponding date of 1918 being 460,024, an increase of practically 100,000.

Commercial cars showed a 26 per cent increase over 1918, while there was a 23 per cent increase in the number of chauffeurs, the number of licensed drivers footing to 176,466.

It was noticeable that motor cycles showed a decrease of 518 over a year ago. This also

held true in New York City, where the decrease amounted to 91.

In the State as a whole, automobile dealers increased from 2251 to 2661, a gain of 410 or 18 per cent. The number of buses also increased by 23 per cent. The total receipts to the Secretary of State's office from its Motor Vehicle Department reached \$6,000,000 approximately, being \$1,000,000 in excess of 1918, or approximately 20 per cent.

Taking the New York City registration figures separate from those of the entire State, an increase of 35,087, or 36 per cent was shown in passenger cars. The same period brought an increase of 24 per cent in commercial cars. The number of dealers expanded from 645 in 1918 to 813 on Dec. 1, 1919. New York City registered 171,539 motor vehicles in 1919, while its chauffeurs at the end of 1919 number 104,632, as compared with 82,476 on Dec. 1, 1918.

The important part which New York City played in the motor vehicle receipts was revealed in the fact that the 24 per cent increase for 1919 brought the total to \$2,408,889.75, a gain of \$470,445.25 over the same date a year ago.

The accompanying tables give the number of cars, dealers, chauffeurs, and motor cycles on Dec. 1, 1919, and on a like date in 1918, with the increase of each:

NEW YORK STATE			
	1919	1918	Inc.
Passenger	440,048	364,050	75,998
Omniibus	21,908	17,862	4,041
Trucks	98,846	74,574	19,272
Trailers	2,359	2,187	171
Dealers	2,661	2,251	410
Total cars	560,811	460,924	99,887
Chauffeurs	176,466	143,789	32,677
Motor cycles	27,988	28,506	* 518
Receipts	\$5,881,628	\$4,906,866	\$974,756

NEW YORK CITY			
	1919	1918	Inc.
Passenger	122,972	97,885	35,087
Omniibus	8,622	6,806	2,816
Trucks	88,479	81,078	7,401
Trailers	658	614	89
Dealers	818	645	168
Total cars	171,539	136,528	35,011
Motor cycles	7,909	8,000	* 91
Chauffeurs	104,632	82,476	22,156
Receipts	\$2,408,889	\$1,938,444	\$470,445

* Decrease.

The deficiencies and failure of transit facilities during the year had a marked effect on the automobile industry and there was an unprecedented demand for closed cars and passenger busses. Realizing this many States inaugurated important road improvements, and this naturally increased the use of motor passenger cars and freight trucks for local or through express service. In regard to the increased uses of passenger busses it may be stated that in Newark, N. J., during the first half of the year 1919, 16,000,000 passengers were so transported and the fares amounted to \$800,000. In Greater New York various municipal bus lines were arranged under city auspices to supplement other transportation facilities.

PASSENGER CAR DESIGN. The tendency in design during 1919 did not involve radical changes but rather contemplated various refinements with consequent improvements to mechanism and bodies. Two reasons readily could be assigned for this situation: first, the condition of the

art of motor car design, which had reached a point of development where radical innovations were neither possible nor desirable; and second, the great demand and the resumption of manufacturing on a pre-war basis where quantity production rather than development was the governing consideration. The designers and manufacturers in 1919 were satisfied to conserve the successful features of their product and in evolving the 1920 models they presented few novelties. The power plants of the cars showed but little change, and the familiar four-cylinder engine continued to enjoy the greatest vogue, with the 6-cylinder engine next. The 8- and 12-cylinder V-engines continued, possibly with a slight tendency to revert to the six-cylinder model, especially where both types had been made. The designers had to take care of the poorer grades of fuel that motorists were forced to accept, so that some improvements were made in carburetors and ignition systems. In this way the engine would run better and an improved intake manifold system was provided. In fact heated gas manifolds were being provided in many of the engines designed in 1919 and along with them in many cases went an automatic water circulation control.

The engines proper in various models were unquestionably improved and perfected, and the tendency towards accessibility and symmetrical and convenient arrangement continued, so that in some power plants all the important elements of the mechanism could be reached from one side. There was noted also a tendency to make the cars easier riding through improved spring arrangement involving better suspension. There was also a tendency towards making the cars lighter by the use of more sheet steel and aluminum. The general appearance of the 1920 model car was that it was low, but this effect usually was secured without sacrifice of clearance space by improved construction where the body is suspended from brackets attached to the chassis frame, and not mounted on top.

MOTOR TRUCKS. During 1919 perhaps the two most salient features of the design, manufacture and operation of motor trucks, were the consideration of the performances of American motor trucks in the war zones of Europe and their regular use on long distance haul to supplant rail traffic. These two functions for trucks of various capacities had been tried out in 1918 before interested and disinterested critics so that any radical defects and consequent opportunities for improvement would have been apparent as new designs were prepared. That there were so few changes is due to the fact that performance in the main was satisfactory, and to the fact that the great demand for motor trucks of all sizes throughout the United States had caused manufacturers to work for maximum output rather than to introduce refinements of details.

In 1919 the motor truck industry of the United States was so organized that it was able to turn out its product with a comparatively small increase in selling price, ranging from about 10 per cent for the three-ton capacity trucks to considerably less for those of lighter capacity with an average of about 5 per cent for all classes.

As stated the developments during the year concerned minor points and the practical performance for long distance hauling indicated

constitution provided for a cabinet of six members chosen by the legislature. The ministry as reconstituted in April, 1919, was as follows: Anton Geiss, Prime Minister and Minister of Military Affairs; Dr. Dietrich, Minister of Foreign Affairs; Herr Rückert, Minister of Social Affairs; Ludwig Haas, Minister of the Interior, and Professor Wirth, Minister of Finance. See article GERMANY.

BAGDAD RAILWAY. One of the developments of the war and the British operations in Mesopotamia that came to a successful outcome in 1919 was the virtual completion of the railway from Basra, a town on the Shat-el-Arab River about 60 miles from the Persian Gulf at the head of navigation, to Bagdad, a distance of 270 miles. Over this line it was proposed to run passenger trains that would make the journey in 28 hours at first, later in 12 hours it was hoped, and freight trains that would make the trip in 48 hours. As Basra is the seaport of Bagdad and the point of trans-shipment for imports and exports to the interior, the importance of the new line can be appreciated. Earlier in the year traffic had been resumed on the Bagdad Railway proper and the tunnel through the Taurus Mountains had been completed. Thus it was possible to make the trip from Haidar Pasha, just south of Scutari, opposite Constantinople on the straits, to Neisibin, 100 miles west of Mosul and about 600 miles from Constantinople and two-thirds of the distance from Constantinople to Bagdad, Neisibin being approximately 325 miles northwest of Bagdad. A link to extend from Neisibin, the terminus in 1919, to Bagdad was projected but had not been built. This would have filled out the old Berlin-to-Bagdad scheme of the former German Empire.

BAHAMAS. A group of islands constituting the most northern portion of the British West Indian colonies off the southeast coast of Florida. They are of coral formation and about 20 of them are inhabited. Area, 4404 square miles; population, estimated Jan. 1, 1918, 59,928. The chief islands with their populations according to the census of 1911 are as follows: New Providence, 13,554, containing the capital, Nassau; Abaco, 4463; Harbor Island, 1031; Eleuthera, 6533; Inagua, 1343; Exuma, 3465; Long Island, 4150; Watling's Island, 617; Andros Island, 7545; Acklin's Island, 1733; Grand Bahama, 1824; Crooked Island, 1541; Mayaguana, 358. The imports and exports in 1916 were respectively £475,067 and £332,679, and in 1917, £493,584, and £402,477. The chief imports at the latter date were cotton, linen, woolen goods, flour, earthenware, hardware, hominy, rice, sugar, oleo, boots and shoes, meats, and food-stuffs. The chief exports were sisal, sponge, and pineapples. The revenue in 1917-18 was £86,767, and the estimated expenditure £108,945. The debt in 1917-18 was £50,997. Estimated revenue for 1918-19, £76,356, and estimated expenditure, £98,502. The governor, at the beginning of the year 1919 was Sir William Lamond Allardyce.

BAIRD, JOHN WALLACE. Psychologist, died at Baltimore, Md., February 2. He was born at St. Mary's, Ont., May 21, 1873 and studied at the University of Toronto where he took his degree in 1897. He studied psychology afterwards at the University of Wisconsin and at Cornell University where he remained as assistant in its

psychological department, and he was instructor of psychology at Johns Hopkins from 1904 to 1906 and assistant professor at the University of Illinois, 1906-10, when he was called to Clark University, where he was promoted to a professorship in 1913. His first paper in psychological research was published in 1898 and was an experimental study of color-sensitivity. He translated Neumann's *Psychology of Learning* in 1913 and he published accounts of his researches in the *Psychological Bulletins* from 1911 to 1917. For an appreciation of his work, see Professor Titchener's account in *Science*, April 25.

BALFOUR, ARTHUR J. British representative at the Paris Peace Conference. He was holding the office at that time of Secretary for Foreign Affairs in the British cabinet. He became member of Parliament in 1874 and in 1887 was appointed chief secretary for Ireland, where he governed with remarkable firmness during four years, enforcing a policy of coercion. He was leader of the House in 1891 and after a brief period of opposition held the chief place on the treasury after which he was a leading figure in the House of Commons for 10 years, including the period of the South African War. On the retirement of Lord Salisbury in 1902 he became premier and showed great skill in holding his party together during the tariff reform agitation. Under the Liberal administration he was at first leader of the opposition, but was superseded by Mr. Bonar Law, and for a time his political career seemed to have ended, but he was recalled to an active part in affairs after the beginning of the war. He served as First Lord of the Admiralty in Mr. Asquith's Coalition Cabinet, and when the second Coalition Cabinet was formed he became foreign secretary. He visited the United States after its entry in the war. He had been a member of the Berlin Congress in 1878, serving as private secretary to his uncle, Lord Salisbury.

BALKAN STATES. The states of the Balkan peninsula in the southeastern part of Europe, west of the Black and Aegean Seas. See ALBANIA, BULGARIA, GREECE, MONTENEGRO, ROMANIA, SERBIA, TURKEY, etc., and also the article WAR OF THE NATIONS.

BALLARD, AARON EDWARD. Clergyman, died at Ocean Grove, N. J., November 27. He had been for 20 years the president of the Ocean Grove Association, and was nearly 99 years old at the time of his death. He was born at Bloomfield, N. J., Dec. 25, 1820, the son of a blacksmith, and after a youth of hardship entered the ministry of the Methodist Episcopal Church in 1844. He served in many pastorates in New Jersey and was active in temperance work. In 1890 he was president of the Evangelical Church Commission. He became president of the Ocean Grove Camp Meeting Association in 1898, and was an active force in the organization.

BALLOON. See AERONAUTICS.

BALTIC PROVINCES. The name applied to the three provinces in the region of the Baltic, formerly constituting part of the Russian empire, but with an indeterminate status in 1919, namely, Courland, Livonia, and Esthonia. During the war they were cut off from Russian control, and were under German influence. Courland has an area of about 4922 square miles.

with a population of about 800,000; Livonia, about 16,930 square miles and population of about 1,744,000; Esthonia about 7289 square miles and a population of 1,744,000. According to another authority the estimated populations on Jan. 1, 1915, were as follows: Esthonia, 512,000; Courland, 812,300; Livonia, 1,778,500. Among the chief cities are Riga, the capital of Livonia, with a population estimated before the war of 1,569,100; Reval, capital of Esthonia, 137,600; Libau, 90,744; Mitau, 46,800; Dorpat, 44,140. See COURLAND, ESTHONIA, LIVONIA. The inhabitants of the provinces had not for centuries disposed of their own destiny, but had been successively submitted to the rule of the Knights of Livonia, Poles, Swedes, and Russians, and had been a field of colonization for the Germans of the Hanseatic League. German immigration had been going on for hundreds of years, and though it was not numerically important it exercised a profound influence. In the country of the Letts the Germans did not exceed 4 per cent of the population, and in Esthonia 7 per cent, but in both countries they held the upper hand, both in wealth and in social class. It was estimated that the Baltic barons claimed from one-half to two-thirds of the rural regions. Down to 1918 the German element had been aided by the German empire, apparently being regarded as forerunners of the German annexation, and the peace of Brest-Litovsk held out a favorable prospect for the realization of this dream. Hence the alarm of the enemies of Germany in 1919 over the presence of the German army of von der Goltz in the region. It had become a nucleus for a multitude of demobilized German soldiers, who were drawn to this rich country by the hope of booty. Toward the close of the year 1919 the forces of von der Goltz were estimated at 80,000 men. The enemies of Germany naturally viewed with anxiety the possibility that this German army would become a fixture in the country in defiance of their political aims, and continue the work of crowding out the natives that had been begun by the Hanseatic Germans and the Knights of Livonia, so long before. The attitude of the Baltic provinces themselves appeared from the fact that no part of the world had shown itself more enthusiastic for the principles enounced by President Wilson on behalf of the liberty of peoples. Self-determination was their cherished object. The Lithuanians were tired of being treated as poor relations by Poles. The Letts and Esthonians in spite of the oppression that they had undergone were creating national organizations on their own initiative, and they demanded the right to lead their own life independently of Slavs as well as of Germans. The common enemy of all of them, however, was the German who always figured as a social tyrant. One of the Lett popular songs contains the words, "The forests are full of bears and wolves, The fields are full of masters." It was in order to avoid giving any pretext to the Germans for gathering any army forces in their territories that the Baltic peoples declared themselves ready for an armistice with Russia.

THE BALTIC QUESTION. The essential points in the Baltic question may be summed up as follows: The three Baltic provinces had formed during the war three independent republics. This had resulted from the downfall of the old Russian empire. The Entente, however, did

not recognize these republics officially, for it inclined to the side of Kolchak and Denikine whom the Conference regarded as the true representatives of Russia, and who did not approve of the founding of new states by the people of non-Russian blood within the limits of the former empire. Before the fall of the Czar the Pan-Germans had taken advantage of the Russian government's weakness and tried to penetrate these states. It was the policy of Germany to create vassal states under German princes on her eastern frontier. After the Bolshevik government was set up, a German force under von der Goltz entered the country as the professed enemies of the Bolsheviks. The Peace Conference believed in this profession and article 433 of the treaty stipulated virtually that the German troops should remain as a protection against the Bolsheviks so long as the Allies thought their presence there desirable, these troops "to abstain from all requisitions and seizures and from any other coercive measures, with a view to obtaining supplies intended for Germany" and "in no way to interfere with such measures on national defense as may be adopted by the provisional governments." Thus a sort of understanding between Germany and the Allies was reached on this subject. Critics of this policy declared in the press that the Baltic country had become a refuge for German and Russian monarchists, and reactionaries of all kinds—that in short the region served a similar purpose to that which Coblenz had served during the French Revolution. General von der Goltz and other generals who had attacked Riga declared that they were fighting the Bolsheviks, and the Russians who set up the German-Russian government of Mitau said the same thing, and added that they were determined to destroy the Soviets. In all this the critics saw simply a step on the part of these elements toward the eventual bringing back of the Hohenzollerns to Berlin and the Romanoffs to Petrograd.

THE DORPAT CONFERENCE. A meeting was held at Dorpat on November 18th between representatives of the provinces and the Bolsheviks, the latter headed by M. Litvinoff, former Russian ambassador to England. The object of the meeting was to discuss the exchange of prisoners, but it was thought to have a greater significance as perhaps opening the way to an understanding in respect to peace. See WAR OF THE NATIONS.

BALTIMORE. See GARBAGE.

BANK CLEARINGS. See FINANCIAL REVIEW.

BANKS AND BANKING. The almost unprecedented demands upon the industries of the country throughout the year 1919, with the accompanying renewal of activity in investment and speculation, coupled with scarcity of commodities, resulted in such an expansion of bank credit that it was plainly evident toward the end of the year that the reserve system was getting as near the limit of its expansive capacity as it was wise to go. A calculation of the amount of war obligations of the government held by all banks on June 30, 1919, appeared in the Federal Reserve *Bulletin* for October. The total, which includes Liberty Bonds, Victory Notes, and Treasury certificates owned outright and held as collateral for loans, amounts to \$6,500,000,000. These obligations have "manufactured" bank credit and purchasing power which,

not being accompanied by a corresponding increase in the productive capacity of the country, were chiefly expended in driving up wages and prices, in a highly competitive demand for labor and materials. For other material relating to this subject the reader is referred to the following articles: AGRICULTURAL CREDIT, FINANCIAL REVIEW, NATIONAL BANKS, SAVINGS BANKS, STATE BANKS, and WAR FINANCE.

An idea of the great increase in the banking resources of the United States during recent years may be gained from a statement made near the end of the year 1919 by the National City Bank of New York, one of the most prominent of the banking institutions in the country. This bank's resources amounted to about \$1,028,000,000 on November 17th, the first time that a bank in the Western Hemisphere has shown assets above the billion mark. This did not include the resources of the International Banking Corporation, owned by the National City Bank, which amounted to \$109,000,000. During the year 37 new foreign branches were opened by the two institutions, bringing their total number of branches up to 75. The first foreign branch of the National City Bank was opened at Buenos Aires a little more than five years before—Nov. 10, 1914.

FEDERAL RESERVE SYSTEM. The great strength and value of the Federal Reserve System, only five years old on Nov. 16, 1919, were more apparent than ever before during the year 1919, the current trade and industry of the country being financed without interruption in spite of the unusual conditions of expansion arising out of the period of readjustment following the war. Unusual additions to the country's stock of gold had increased the gold holdings of the Federal reserve banks from \$315,977,000 on Nov. 19, 1915 to \$2,201,804,000 on June 6, 1919, when they touched the highest point reached up to this time. On Nov. 21, 1919 they stood at \$2,119,315,000. The decline in gold holdings was in great measure due to the termination of the gold embargo on June 9 (originally put in operation Sept. 7, 1917), after which gold was exported from the country much more freely. Loans and investments, however, continued to increase despite the decline in gold reserves, and the Federal Reserve Board found it necessary to issue warning that in the interest of security and stability to industry the expansion of credit must be checked, by paying up the bank loans secured by government paper, and by conducting business in accordance with the facilities supplied by the present volume of credit.

The cessation of hostilities did not end the war work of the banks, the 1919 activities of the entire reserve system continuing undiminished in scope and volume. According to the weekly statement of the Federal Reserve Board on December 26th, "loan operations for the government in close harmony with the Treasury, involving the flotation of the several issues of loan and tax certificates, continued to be one of the leading, if not the leading function of the Reserve Banks." This involved the collection, concentration, and disbursement on government account of \$15,659,000,000 of which \$4,491,500,000 represents the total of Victory Loan allotted, \$6,754,400,000 represents the combined amounts of eight series of certificates issued during the year in anticipation of the Victory Loan and of four series of so-called loan certificates, and \$4,413,

600,000 represents the total of 11 series of certificates issued in anticipation of income and excess profits taxes due in 1919 and 1920. On May 16th, at the consummation of the Victory Loan, war paper constituted 91.4 per cent of the total discounts held by the Federal Reserve banks, the maximum for the year; on December 26th the proportion was 68.8 per cent.

The activities of the Federal Reserve Bank in curbing speculation on the stock exchanges are discussed under FINANCIAL REVIEW.

RESERVE BANK STATEMENT. According to the consolidated statement issued on Dec. 26, 1919, aggregate resources of the 12 Federal Reserve Banks were \$6,325,000,000. This was an increase of \$1,073,000,000 or about 20 per cent during the year, and the total was more than six times the aggregate in 1916. Total reserves were \$2,135,000,000, a decrease of \$11,000,000 during the year. In the reserves were included a total of \$2,078,000,000 in gold, which show a decrease of \$12,000,000 during the year. This gold was distributed as follows: Gold coin and certificates, \$229,445,000; gold settlement funds, \$352,785,000; with foreign agencies, \$134,320,000; with Federal reserve agents, \$1,240,032,000; gold redemption fund, \$121,850,000. The total earning assets of the 12 banks aggregated \$3,080,000,000, an increase of about 25 per cent during the year. In this item were included discounted bills secured by government war obligations, amounting to \$1,510,000,000; other discounted bills, \$684,514,000; United States securities, \$300,405,000. Of aggregate liabilities, the chief items were as follows: Capital paid in, \$87,339,000; government deposits, \$72,357,000; Federal reserve notes in actual circulation, \$3,058,000,000; due to members, reserve account, \$1,787,000,000; and deferred availability items, \$822,680,000. The total deposits showed a gain of 20 per cent over 1918, and the total amount of Federal reserve notes in circulation was about 14 per cent greater than in 1918.

As was indicated above, the gold reserves did not keep pace with the expansion in note circulation; the ratio of total reserves to Federal reserve notes in circulation after setting aside 35 per cent against net deposit liabilities was 50.3 per cent as compared with 59.7 per cent in 1918. The ratio of total reserves to net deposits and Federal reserve note liabilities combined was 44.8 per cent as compared with 50.6 per cent in 1918 and 61.8 per cent in 1917.

The reserve bank of the second district (New York) continued to be by far the most important bank of the 12. Its total gold reserves on December 26th were \$570,438,000, or about 22 per cent of the system's total; it had bills discounted and bought to the amount of \$970,506,000; and it held deposits due to members on reserve account of \$706,254,000. Its earnings of \$28,000,000 for the year represent 130 per cent on its paid-in capital. The Chicago bank, in the seventh district, was again the second most important, with total gold reserves of \$372,355,000; bills discounted and bought, \$383,621,000; and due to members on reserve account, \$253,864,000. In the order of their importance the others were: Cleveland, San Francisco, Boston, Philadelphia, St. Louis, Richmond, Kansas City, Atlanta, Dallas, and Minneapolis.

One indication of the growth of the system is the increase of \$6,658,000 during the year in the amount of paid-in capital. The largest rela-

tive gains in paid-in capital are recorded in San Francisco, Chicago, and Kansas City; the largest increases in number of banks admitted to membership were in San Francisco, Chicago, and Cleveland.

RESERVE ACT AMENDMENTS. The so-called "Edge bill," amending Section 25 of the Federal Reserve Act, became a law in December. The essential features of this act are that corporations having a capital of not less than \$2,000,000 may be organized to engage in foreign banking business, that they may sell debentures or other obligations to the amount of 10 times their capital, and that national banks may subscribe to the stock of such corporations provided that their total holdings in these and other corporations of similar kind shall not exceed 10 per cent of their capital and surplus. This act, it is hoped, may rally the European exchange situation, and brave hopes were entertained for its success, which would ultimately depend on the desire of the investing public for such securities as the act creates.

FOREIGN BANKS. A comparative statement of the principal items of the resources and liabilities of the Bank of England is as follows (000's omitted):

	Dec. 3, 1919	Jan. 2, 1919
Gold coin and bullion	£91,842	£79,976
Reserve notes and coin	18,442	28,236
Circulation	91,849	70,189
Public deposits	19,213	26,806
Other deposits	180,637	214,893
Government securities	92,469	124,305
Other securities	106,777	106,472
Proportion of reserves to liabilities	9.20%	11.70%
Bank rate	5%	5%

In the next to the last week of the year the proportion of reserves to liabilities was 11.51 per cent, which at that time was almost the lowest of the year; then came a further loss of gold holdings, bringing it to the low record of 9.20 per cent.

The statement of the Bank of France shows the following (000,000's omitted):

	Jan. 1, 1920 <i>France</i>	Jan. 2, 1919 <i>France</i>
Gold—In France	3,801	3,449
Gold—Abroad	1,978	2,037
Silver	266	818
Bills discounted	1,655	1,862
Advances	1,507	1,251
Note circulation	37,661	31,055
Treasury deposits	76 (Dec. 25)	84
General deposits	2,370	1,892

The note circulation in the above table may be compared with 17,001,000,000 francs on Jan. 4, 1917 and with 6,683,000,000 francs just before the war broke out. This remarkable note expansion was an important factor in the war finance of the country.

The gold holdings of other leading European state banks on Jan. 1, 1920, in pounds, were as follows: Germany, £54,480,650; Russia (Oct. 29, 1917), £129,650,000; Austria-Hungary, £10,944,000; Spain, £96,895,000; Italy, £32,200,000; Netherlands, £53,110,000; Switzerland, £20,650,000; Sweden, £15,647,000; Denmark, £11,787,000; and Norway, £8,143,000. The principal increase in gold holdings in Europe was in the Bank of England, about £12,000,000; Germany showed a loss of about £60,000,000.

BAPTISTS. The Baptists are divided into

three main groups: the Northern Convention, the Southern Convention, and the National Convention (colored). The Northern Convention reported the following figures for 1919: 9101 churches, 8346 ordained ministers, 1,285,416 church members, 8203 Sunday schools with 951,450 pupils. Total contributions from the churches for all purposes were \$16,331,618. The church maintained 8 theological seminaries, 9 missionary training schools, 22 colleges and universities, 9 junior colleges, 28 academies and 16 schools for the negroes, 4 others scattered. The war activities of the church were under the control of the War Commission of the Northern Baptist Convention. This Commission had a secretary in the field and placed a large number of men in the camps. Funds for this work were voted by the Home Mission Society and by contributors of the churches. During 1919 the National Committee of Northern Baptist Laymen assumed the responsibility of raising the missionary and evangelical funds of the church. The campaign was successful in securing the sum of \$6,000,000 for missionary work. The denomination is now engaged in the programme of raising \$100,000,000 in the next five years for its missionary and educational work and is co-operating with the Inter-church World Movement to this end.

The Southern Baptist Convention reports the following figures for 1919: 24,373 churches, 17,308 ministers, 3,023,674 members, 18,894 Sunday schools, 1,698,898 pupils, total contributions, \$15,828,882. Fifty-eight colleges and universities, and two theological seminaries are maintained.

The National Baptist Convention (colored) reports the following figures for 1919: 20,151 churches, 17,398 ordained ministers, 2,735,007 members, 16,500 Sunday schools, 822,618 scholars, total contributions, \$1,097,771. Two schools are maintained.

Other smaller Baptist organizations are: General Six Principle Baptists, Seventh Day Baptists, Free Will Baptists, Free Will Baptists (colored), Free Will Baptists (Bullockites), General Baptists, Separate Baptists, Regular Baptists, United Baptists, Duck River and Kindred Associations (Baptist Churches of Christ), Primitive Baptists, Colored Primitive Baptists, and Two-Seed-in-the-Spirit Baptists.

BAPTISTS, FREE. This denomination has ceased to exist as a denomination, having completely united with the Baptist Church during the year. Its missionary work and denominational activities were taken over by the three national mission organizations of the Northern Baptists: The American Baptist Foreign Mission Society, the American Baptist Home Mission Society, and the American Baptist Publication Society. This union was effected in 1911, and complete financial arrangements were made in 1919.

BARBADOS. The most easterly of the Caribbean Islands, a British colony, lying to the west of the Windward Islands, with a length of 21 miles and a breadth of 14 miles, and an area of about 166 square miles. The population in 1911 was 171,982, and, estimated, Dec. 31, 1917, 186,656. Capital, Bridgetown, the chief city and port with a population (1911) of 16,648. The latest available figures for revenue, expenditure, exports and imports in pounds sterling were as follows:

	1915-16	1916-17	1917-18
Revenue	£212,484	£311,118	£399,969
Expenditure	227,009	242,605	456,308
Imports *	1,270,154	1,851,054	2,285,278
Exports *	1,058,380	2,207,257	2,190,114

* Including bullion and specie, but the exports exclude bunker coal (£251,588 in 1917).

Public debt in 1917-18 was £538,900. The executive power is vested in a governor with an executive council and an executive committee, and the legislative in a Legislative Council of nine members appointed by the King, and a House of Assembly of 24 members elected by the people. The governor at the beginning of 1919 was Lieut.-Col. C. R. M. O'Brien.

BAR ASSOCIATION, AMERICAN. An organization having for its purpose the advancement of the science of jurisprudence, the promotion of the administration of justice and uniformity of legislation, and the upholding of the honor of the legal profession. The forty-second annual meeting was held in Boston, Mass., on Sept. 3, 4, 5, 1919, with President George T. Page presiding. Mr. Page opened the meeting with an address of welcome, after which he introduced Viscount Finlay, ex-Chancellor of Great Britain. Viscount Finlay spoke about the cordial relations existing between the American and British bars, and how each had played an important part in the war. He called to mind several incidents in American History where, despite prejudice, justice had always reigned supreme. Hon. Elihu Root then spoke about the principles of "democracy, the liberty, and unalienable rights of individuals, for which the struggle between England and America a century and a half ago was fought, and in which the liberty of England and America both won." Dr. David J. Hill of New York spoke on "The Nations and the Law." Among the resolutions presented and passed were the following: Approval of the act to make uniform in all States the law of Conditional Sales, and the law of Fraudulent Conveyances; to continue "our organized opposition to judicial recall." A lengthy discussion on the subject of court-martials took place, but the matter was finally turned over to the executive committee for consideration. Other speeches given before the meeting were: "The New Constitution of the United States," by Robert L. Batts; "The Power of Congress to Tax States' Securities under the Sixteenth Amendment," by Albert C. Ritchie; "Some Legal Questions of the Peace Conference," by Robert Lansing. The Secretary's report showed 10,995 active and 15 honorary members at the date of publication of the 1918 Report. Since then there have been 437 deaths and resignations, and 465 new members were proposed, all of whom were elected by the executive committee. There are 38 State Bar Associations affiliated with the American Bar Association. The Treasurer's report showed \$13,194 in assets. The *American Bar Association Journal* is the official organ of the organization. The minutes of the annual meeting are published in book form. The officers in 1919 were: President, George T. Page, of Peoria, Ill.; Secretary, George White-lock, of Baltimore; Treasurer, Frederick E. Wadhams, of Albany, N. Y.

BARLEY. According to data published by the International Institute of Agriculture, Rome, the recovery in barley culture in 1919 for the countries reporting was not very marked. An

increased acreage as compared with 1918 was recorded only for Denmark and Great Britain and as compared with the average for the five years 1913 to 1917 for Spain, Great Britain, Norway and Switzerland. In production Great Britain, the Netherlands, and Rumania showed an increase over the preceding year and an increase over the five-year period was secured only in Spain and Switzerland.

The chief barley-producing countries and their yields in 1919 in addition to the United States were as follows: Japan, 87,837,000 bushels; Spain, 85,465,000 bushels; Canada, 63,700,000 bushels; Great Britain, 49,576,500 bushels; and Algeria, 32,327,000 bushels. Data for most of Central Europe and Russia and for the southern hemisphere were not reported. The United States in 1919 as estimated by the Department of Agriculture produced 165,719,000 bushels as against 256,225,000 bushels in 1918. The area devoted to barley was reduced from 9,740,000 acres in 1918 to 7,420,000 acres in 1919, which was less by 300,000 acres than the average area for the five years 1913 to 1917. This reduction in barley culture was due mainly to the large increase in the wheat acreage and the prohibition placed on the use of cereals for the manufacture of intoxicating beverages as war measures.

The average yield was 22.3 bushels per acre or 4 bushels under the average yield of 1918, and 3.3 bushels less than the five-year average for 1913 to 1917. The average weight per measured bushel for the year was estimated at 45.2 pounds as compared with 48 pounds, the legal weight, and 46.5 pounds, the average for the 10 years 1910 to 1919. On Dec. 1, 1919, the average price paid farmers was 120.9 cents per bushel against 91.7 cents on the corresponding date the year before and 72.4 cents the average for the five-year period 1913-17. At 120.9 cents per bushel the total value of the 1919 crop reached \$200,419,000 or \$34,523,000 less than the value of the 1918 crop but \$56,177,000 above the average for the five-year period mentioned.

In the United States over 85 per cent of the barley crop is harvested in July and August. Of the portion of the crop used for feeding ordinarily about 60 per cent is fed to swine, nearly 18 per cent to horses and the rest to cattle and poultry. At the close of the year barley rose in price on the European market to unusually high figures and sold in England for near \$3 per bushel.

BARNARD COLLEGE. See COLUMBIA UNIVERSITY.

BARNES, GEORGE NICOLL. British representative at the Paris Peace Conference. He was born in Scotland in 1859. He became Member of Parliament for Glasgow in 1906, and gained a reputation in the House for his straightforward conduct and his wide knowledge of labor conditions. In several successive Parliaments he was a recognized leader of the Labor party. During the war he loyally supported the national cause and was appointed by Mr. Lloyd George Minister of Pensions in the second Coalition Cabinet. He replaced Mr. Henderson in the War Cabinet as a member without portfolio, after Mr. Henderson's retirement on account of the Stockholm affair.

BARNEY, SAMUEL STEBBINS. Judge and member of Congress, died at Milwaukee, Wis., December 31st. He was born at Hartford, Wis.,

Jan. 31, 1846, and was educated at Lombard University. He taught in the high school of his native town and was admitted to the bar in 1873. He was superintendent of schools from 1876 to 1880, and delegate to the Republican National Convention in 1884, and a member of Congress from 1895 to 1903. After 1906 he was Associate Justice of the United States Court of Claims.

BAROTSELAND. See RHODESIA.

BARR, AMELIA EDITH. Author, died in New York City, March 10th. She was born, March 29, 1831, at Ulverston, England, and married Robert Barr in 1850. She went to Texas in 1854 but removed to New York in 1869 where she devoted herself to writing. Her novels are very numerous and the best of them deal with historical incidents with scenes laid in Scotland, the North of England and Dutch New York. The list of her writings includes 75 titles, among which may be mentioned the following: *Romance and Reality* (1872); *Jan Vedder's Wife* (1885); *A Daughter of Fife* (1886); *A Bow of Orange Ribbon* (1896); *Friend Olivia* (1891); *Birds of a Feather* (1893); *The Lone House* (1894); *Bernicia* (1895); *A Knight of the Nets* (1896); *Trinity Bells* (1899); *The Maid of Maiden Lane* (1900); *Souls of Passage* (1901); *The Lion's Whelp* (1901); *The Black Shilling*, *The Belle of Bowling Green* (1908); *The Strawberry Handkerchief* (1908); *The Hands of Compulsion* (1909); *The House of Cherry Street* (1909); *Sheila Vedder* (1911); *Playing with Fire* (1914); *Measure of a Man* (1915); *Profit and Loss* (1916); and *Orkney Maid* (1917).

BARRELL, JOSEPH. Geologist, died at New Haven, Conn., May 4th. He was born at New Providence, N. J., Dec. 15, 1869; studied at Lehigh and Yale; engaged in mining and geological work in the West, and in 1900 became professor of geology at Lehigh University. He also served as mining engineer to several mining corporations. In 1903 he was called to Yale and became a professor there in 1908. He was widely known for his researches in physical geology, particularly isostasy, erosion and sedimentation. For an appreciation of his work, see *Science*, June 20th.

BARRY, THOMAS HENRY. American general, retired, died in an army hospital near Washington, D. C., December 30th. He belonged to the so-called "Old Guard" of higher officers in the regular service. He was born in New York City, Oct. 13, 1855, graduated at West Point in 1887, and served at once in the Indian Wars in the Dakotas and Montana. He advanced rapidly in rank and in 1897 was appointed major and assistant adjutant-general and during the Spanish War he was adjutant-general of the 18th army corps. He served in the Philippines where he was chief-of-staff and he was also an officer in the China relief expedition. He became major-general April 29, 1908, in reward for his excellent work in cooperation with Governor Magoon in Cuba. He was superintendent of the United States Military Academy from 1910 to 1912, and in 1914 was sent to the Philippines as commander of all the American troops in the islands. In 1916 he was placed in command of the Central Department with headquarters at Chicago and upon the formation of the draft army he took command of the 86th division at Camp Grant, Rockford, Ill. He was one of those who on account of physical disability was kept at home

on duty, being regarded as physically unfit for service in France.

BARZILAI, SALVATORE. Italian representative at the Paris Peace Conference. He was born in Trieste of Jewish parentage, and was at an early age identified with the Irredentist agitation. Passing over to Italy he became a member of the Republican party and was elected to the Chamber where he showed unusual talent as a speaker. He was a minister without portfolio in the Boselli cabinet, and a member of the parliamentary committee that organized the Congress of Oppressed Nationalities at Rome.

BASEBALL. The professional baseball season of 1919 was the most successful in the history of the national game from a financial standpoint, much to the surprise of the club owners who feared that post-war conditions would not be favorable to this branch of sport. So skeptical were the magnates that they shortened the major league schedule from 154 games to 140 at the annual winter meeting.

As the season went along the constantly increasing attendance proved that the public after the stress and strain of war was turning to this form of recreation for relief and relaxation. The action of the New York State Legislature in enacting a measure permitting Sunday ball in Greater New York also had its effect in the way of larger gate receipts. A third reason for the prosperity of baseball in 1919 was the closeness of the pennant races in the two big leagues.

The financial success attending baseball during the year, however, was powerless to quell the dissatisfaction felt in some quarters with the manner in which the controlling powers of the game conducted affairs. Byron B. Johnson, the president of the American League, was the special target of certain club owners who resented what they considered his high-handed and arbitrary methods. The storm broke toward the close of the season when Johnson suspended Carl Mays, a pitcher secured from the Boston Club by the New York Club.

Col. Jacob Ruppert and Col. T. L. Huston, owners of the New York Club, or Yankees, secured an injunction from the court restraining Johnson from interfering with the playing of Mays as a member of the New York team. This move led to several others of a legal nature and a war in the courts followed which is still continuing. Supporting the New York Club which is avowedly seeking the removal of Johnson from the presidency of the league are Harry Frazee, owner of the Boston Americans, and Charles A. Comiskey, owner of the Chicago Americans.

For the first time since 1914 a National League team won the world championship, the Cincinnati Reds led by Pat Moran, accomplishing the feat at the expense of the Chicago White Sox after a series of eight games. All previous records for receipts were smashed in this series, although the attendance fell a bit behind the mark set by the Giants-Red Sox contests in 1912. The total receipts for the world series in 1919 were \$722,414, exclusive of war tax. The attendance for the eight games was 236,928.

The first game was played at Cincinnati on October 1st, the Reds winning by a score of 9 to 1. The fine pitching of "Dutch" Reuther, for Cincinnati, and the heavy hammering his team mates gave Eddie Cicotte, the Chicago twirler, were the outstanding features. The scores of the other games follow:

October 2d at Cincinnati—Cincinnati 4 runs, 4 hits, 1 error; Chicago 2 runs, 10 hits, 2 errors; Batteries, Sallee and Rariden; Williams and Schalk.

October 3d at Chicago—Chicago 3 runs, 7 hits, 2 errors; Cincinnati 0 runs, 3 hits, 4 errors. Batteries, Kerr and Schalk; Fisher, Luque, and Rariden.

October 4th at Chicago—Cincinnati 2 runs, 5 hits, 2 errors; Chicago 0 runs, 3 hits, 2 errors. Batteries, Ring and Wingo; Cicotte and Schalk.

October 6th at Chicago—Cincinnati 5 runs, 4 hits, 0 errors; Chicago 0 runs, 3 hits, 3 errors. Batteries, Eller and Rariden; Williams, Mayer, and Schalk, Lynn.

October 7th at Cincinnati—Chicago 5 runs, 10 hits, 3 errors; Cincinnati 4 runs, 11 hits, 0 errors. Batteries, Kerr and Schalk; Reuther, Ring, and Rariden.

October 8th at Cincinnati—Chicago 4 runs, 10 hits, 1 error; Cincinnati 1 run, 7 hits, 4 errors. Batteries, Cicotte and Schalk; Sallee, Fisher, Luque and Wingo.

October 8th at Chicago—Cincinnati 10 runs, 16 hits, 1 error; Chicago 5 runs, 9 hits, 1 error. Batteries, Eller and Rariden; Williams, James, Wilkinson, and Schalk.

According to the composite score the Cincinnati Reds outthit their opponents .255 to .224, while the Chicago White Sox had a slight edge in fielding with .965 as against .963.

Tyrus Raymond Cobb of the Detroit Tigers once more captured the batting honors in the American League, while Eddie Roush of the champion Cincinnati Reds was the topnotcher with the stick in the National League. The most effective pitcher in the American League was Walter Johnson of the Washington Club, and in the National, Grover C. Alexander of the Chicago Cubs.

The final standing of the clubs in the National League was:

Cincinnati, won 96, lost 44; New York, won 87, lost 53; Chicago, won 75, lost 65; Pittsburgh, won 71, lost 68; Brooklyn, won 69, lost 71; Boston, won 57, lost 82; St. Louis, won 54, lost 83; Philadelphia, won 47, lost 90.

The final standing of the clubs in the American League was:

Chicago, won 88, lost 52; Cleveland, won 84, lost 55; New York, won 80, lost 59; Detroit, won 80, lost 60; St. Louis, won 67, lost 72; Boston, won 66, lost 71; Washington, won 56, lost 84; Philadelphia, won 36, lost 104.

The pennant winners in the more important minor leagues were:

International, Baltimore; American Association, St. Paul; Southern Association, Atlanta; Pacific Coast League, Vernon; Eastern League, Pittsfield; Western League, St. Joseph; Three I, Bloomington; Texas League, Fort Worth; South Atlantic League, Columbia.

Among the American colleges Holy Cross had the strongest nine, completing a schedule of some 30 games with only one defeat.

BASHFORD, JAMES WHITFORD. Methodist Episcopal bishop, died at Los Angeles, Cal., March 18th. He was born at Fayette, Wis., May 29, 1849; graduated at the University of Wisconsin in 1873; and after teaching in the university was ordained to the ministry in 1878. He was pastor in Boston and Auburndale, Mass., Portland, Me.; and Buffalo, N. Y.; and was president of the Ohio Wesleyan University from

1889 to 1904, when he was elected bishop. He was a leader in organizing missionary work in China and in 1907 he took part in the promotion of relief measures. He was a delegate to the World's Ministry Conference at Edinburgh in 1910. He was the author of the following books: *Outline of Science of Religion* (1891); *The Awakening of China* (1906); *China and Methodism* (1907); *God's Missionary Plan for the World* (1907); *China—An Interpretation* (1916); and *Oregon Missions* (1918).

BASKETBALL. The basketball championship of the intercollegiate league was won for the second time in succession by the University of Pennsylvania quintet, but no trophy was awarded the winner because of the unusual conditions existing as a result of the war. Mike Sweeney of the Pennsylvania team was the leading scorer for the season's play. Yale captured second place in the final standing, Cornell, Princeton, and Columbia following in order.

BASS, JOSEPH PARKER. Publisher, died at Bangor, Me., March 27th. He was born at Randolph, Vt., in 1835; was educated in the common schools, and entered the dry goods business in Lowell, Mass. He afterwards went into business for himself and removed to Bangor in 1863, where after 1879 he engaged in publishing work and organized the J. P. Bass Publishing Company. He was mayor of the city of Bangor in 1873; held other important offices in the city, and at the time of his death was director of the Second National Bank.

BATES COLLEGE. A non-sectarian institution at Lewiston, Me., founded in 1864. In the fall of 1919 there were 494 students; in the summer school, 70; while there were 40 members in the faculty. The productive funds of the institution amount to \$1,107,000. The library contains 46,356 volumes. In the fall of 1919 Chase Hall was dedicated, in memory of George Colby Chase, who was for more than 50 years connected with Bates, and died when president, in May, 1919. Chase Hall is to serve as a social centre for all the men of the institution, and is one of the finest of its kind in the country. On November 29th, Rev. Clifton D. Gray was elected third president of the college; he will assume office in May, 1920, being inaugurated in the following month, during Commencement Week.

BATTLE, KEMP PLUMMER. University president, died at Raleigh, N. C., February 4th. He was born near Louisburg, N. C., Dec. 19, 1831; graduated at the State University in 1849; was admitted to the bar in 1854; practiced law for more than 20 years, and was prominent in the politics of South Carolina. From 1876 to 1891 he was president of the University of North Carolina and was professor of history from 1891 to 1907, after which he was professor emeritus. He wrote histories of the university, the Supreme Court of the State, the city of Raleigh, and other historical monographs.

BATTLESHIPS AND OTHER WAR VESSELS. Each war of recent times has differed from others which have gone before in scope, character, and centre of effort. The results of the operations have not therefore been conclusive on more than a few points; and in most cases, the test of war has done little but confirm the conclusions of peace. The special conditions under which the operations of each war are carried out naturally produce new types (in many

cases of temporary value) or such variations in existing types as will fit them to the work in hand. In the recent war there were developed the British and Italian so-called *monitors*, the *Q-ships*, *seaplane carriers*, *coastal motor boats*, *submarine chasers*, *eagle boats*, and *mine-laying submarines*; while the *battle cruiser*, the *mine-laying cruiser*, the *destroyer*, the *mine-sweeper*, and the *submarine* were developed in certain directions. The effect of the war on types of war craft is hereinafter considered under the separate heads of *Battleship*, *Battle Cruiser*, etc.

ARMORED CRUISER. This type of war vessel, fully discredited before the war, has been finally condemned as a result of war experience. The features of the type were: (a) Armor of less than half the thickness of that on contemporary battleships; (b) guns of 6- to 10-inch caliber; (c) speed of 3 or 4 knots more than that of contemporary battleships; (d) displacement of half to two-thirds that of battleships. The increase of speed of battleships and of light cruisers rendered the older armored cruisers obsolete and the advent of the battle cruiser did the same for the later types. During the war armored cruisers proved to be well-nigh useless, particularly the British types which were fitted with guns of ridiculously light caliber, many of them mounted so low as to be useless except in smooth water.

BATTLE CRUISER. This type of warship, in which armor protection is largely sacrificed to secure very high speed, is still undergoing development, brought about in part by the increased speed of battleships. Whether the type will persist is seriously questioned; but something between the fast light cruiser and the battleship seems inevitable and at present the battle cruiser appears to be the most satisfactory solution. A considerable portion of naval opinion inclines toward a very fast battleship of 27 or 28 knots with as much protection—above and below water—as can be given. This, its advocates contend, replaces the heavy battleship and the battle cruiser. Its opponents hold that it does neither—that it cannot successfully oppose the heavily protected battleship nor act efficiently against large and fast light cruisers. During the war the British laid down (1915) and completed (1916) the battle cruisers *Renown* and *Repulse*. The vessels have a displacement of 27,500 tons at a mean draft of 25 feet 6 inches. The length over all is 794 feet; beam, 90 feet. The armor on the side amidships is 6 inches; on the barbettes, 7 to 4 inches; on the turrets, 11 to 7 inches. The speed is 32 knots with 120,000 indicated horse power; and the main battery, 6 15-inch guns in the three turrets, one forward, two aft, and all on the centre line. Except as to length, draft, and battery, they differ but little from the *Lion* and *Tiger* classes. About the same time the mammoth cruisers *Courageous*, *Glorious*, and *Furious* were built. The first two carry 4 18-inch guns. The displacement is 18,600, on a mean draft of 22 feet 3 inches; length, 786.25 feet; beam, 81 feet. The side armor is 3 inches; on the barbettes, 7 to 3 inches; on the turrets, 9 to 7 inches. Light as this armor is, that on the *Furious* is somewhat less, being only 7 inches on the turrets. The displacement is 19,100 on a mean draft of 21 feet 6 inches; length, 786.5 feet; beam, 88 feet. The horse power of all three is 90,000, and the speed 31.5 to 32 knots. After the battle of Jutland the

Hood and one or two others of her class were commenced. Only the *Hood* was very far advanced when the war closed and she alone is to be completed. While by some she is regarded as a battle cruiser, she is properly classed as a high-speed battleship and typifies the ideas of the advocates of the combined battleship and battle cruiser. (See paragraph on *Battleships* below.) The U. S. battle cruisers of the *Constitution* class are the highest development of the battle cruiser idea. The displacement is 43,500 tons on a mean draft of 31.3 feet. The length is 850 between perpendiculars; beam, 105.4 feet. The speed is 35 knots with a horse power of about 180,000. The main battery consists of eight 16-inch guns in four turrets. Since the modification of the original plans the details of the armor protection have been changed, and the arrangements at the close of the year were still withheld from publication. Reports from Japan stated that the Japanese government proposed to build two battle cruisers of 40,000 tons; no further details at the close of the year had been published.

BATTLESHIPS. The majority of naval men, particularly in the U. S. navy, doubt the practicability of the very fast battleship. The American idea has always been to build ships in which battery power was the most important feature, protection against enemy attack the second, and speed the third. A fleet of such ships should prove invincible to an equal number of faster but weaker ships. To attain adequate speed and protection has usually necessitated an increase in size. The new U. S. battleships of the *Massachusetts* class exemplify the American idea fully. They carry the heaviest batteries afloat; against attack by gun, torpedo, or aerial bomb they are the best protected ships in the world. To secure these desirable ends with a speed of 23 knots, a normal displacement of 43,200 tons was found necessary. The length is 684 feet over all; beam, 106 feet (110 feet is the width of the locks in the Panama canal). The main battery consists of 12 16-inch guns. The hull and gun positions are heavily armored while along the sides, over the decks and elsewhere there is much interior armor to secure the ships against attack by torpedoes, bombs, and high angle fire of distant guns. Other nations have built and are building ships on the same general principle but, as they are much smaller, they are correspondingly weaker in armament and protection; and in many cases there is some sacrifice of battery or protection to attain a higher speed than could otherwise be reached. As mentioned in the paragraph on battle cruisers the new British battleship *Hood* exemplifies the views of the fast battleship advocates as to efficient combination of the essential qualities of a battleship and battle cruiser. This remarkable ship is of 41,200 tons displacement, 2000 tons less than that of the *Massachusetts* class. Her length between perpendiculars is 860 feet (10 feet more than the *Constitution*), her beam is 104 feet, and her mean draft, 28.5 feet. Her main battery consists of eight 15-inch guns. Her side armor is 12 inches; barbettes, 12 inches; turrets, 15 to 11 inches. She has three armored decks 2 inches, 1.5 inches, and 1 inch thick; also armored bulkheads and other internal armor. As a defense against torpedoes, in addition to armor, her beam is increased about 10 feet to contain a wall of compartments along

the sides from the water line to the turn of the bilge. It must be admitted that the design is a clever combination of speed, battery, and protection. But she is so far inferior in fighting power to a ship of the *Massachusetts* class that the issue of a fight between them should be decided in a few salvos.

BLISTER SHIPS. The first of the ships to carry this title were old British cruisers which had fitted to their sides a bulging structure of timber to act as a protection against the explosion of a mine or torpedo. In later ships this bulging structure was built into the hull and consisted of a large number of small compartments of steel plating. Such bulges or blisters are a characteristic of the "monitors." Vessels were frequently hit by torpedoes on their blisters and these excrescences are said to have saved them from sinking in every case.

COASTAL MOTOR BOATS. These were a variety of very fast motor boats used by the British in the anti-submarine, anti-destroyer work. They were of a modified hydroplane type with torpedo slides in the stern. In attack, the torpedo engine was set going and the torpedo slid into the water. The high speed of the boat enabled it to gain on the torpedo until well ahead; the helm was then put over and the path of the torpedo left clear.

DESTROYERS. In this war the power of the British battle fleet was the deciding factor. The next most important naval weapon on the side of the Allies was the destroyer. At the commencement of hostilities, the British destroyer flotilla, numerous as it was, proved to be wholly inadequate to the necessities of the situation. With characteristic energy and determination, the building of new and more powerful boats was prosecuted with the highest practicable speed. But the usefulness of the destroyer in new roles, particularly in anti-submarine and convoy work, made still farther demands upon the limited numbers. The early British boats—and nearly all the French—were too small for efficient open sea work so that, notwithstanding the constant addition of new boats, this part of the destroyer service was much overworked until the coming of the American flotilla of 40 boats in May, 1917, and even then was far from adequate. The U. S. navy began to build destroyers in large numbers in 1917 but only 33 of the new craft had reached Europe before the close of hostilities. Had the United States entered the war a year earlier, there would have been 250 destroyers in Europe at its close. Both in England and the United States a displacement of 1000 to 1200 tons was the approved destroyer displacement in 1914 and the experiences of the war confirmed the efficiency of this size. The later types, however, were given increased speed so that recent boats in both countries attained about 40 knots while one American boat reached 41. The advantage of larger boats as flotilla leaders was early appreciated and 38 such craft (mostly of 1800 to 1800 tons) were added to the British navy during the war or immediately afterward.

EAGLE BOATS. The length of time required to build a destroyer, its cost, and the urgency for a more powerful patrol boat than the submarine chasers led the United States navy to contract with Mr. Henry Ford for the building of 110 small destroyers of a design (500 tons, 18 knots speed) which would lend itself to rapid produc-

tion and would not add to the burden already laid upon shipbuilding establishments of the country. The unexpected early termination of the war prevented the use of these boats in operations against the enemy but three or four were completed and undergoing trial at the close of hostilities; the contracts for 50 of the 110 were canceled.

MINE-LAYING CRUISERS AND SUBMARINES. Previous to the outbreak of war most mine-layers were small vessels of moderate speed or old gunboats or cruisers refitted as mine-laying ships. The control of the sea by the British compelled the Germans to lay mines by stealth except along their own shores. To accomplish this they built mine-laying cruisers of 4000 tons with a speed of 32 to 34 knots. Each carried 360 mines. For laying a few mines at a time in enemy waters, they devised small mine-laying submarines that carried 12 to 18 mines in inclined tubes extending through the after part of the hull from deck to bottom.

MONITORS, BRITISH AND ITALIAN. At the outbreak of the war the British navy purchased from Brazil three light-draft river monitors which had just been completed in England. These were found to be so useful for shoal work that many other light-draft vessels were built—also called monitors but differing considerably in design. In all, 35 were built. Fourteen (*M15* to *M28*) are of 540 tons, have a speed of 10 to 12 knots, a draft of 7 feet, carry 1 9.2-inch and 1 3-inch gun in armored shields. Five of about 350 tons and 10 knots speed draw 5 feet of water and carry 2 6-inch guns and 1 6-pounder. The three boats built originally for Brazil were of 1280 tons, 5.5 feet draft, 12 knots speed, and carried 3 6-inch and 2 4.7-inch guns behind shields. These 22 vessels were of quite low freeboard, not much greater than that of American monitors; the others were high freeboard and much larger. Four of 6150 tons, 320 feet length, 90 feet beam, and 10.5 feet draft, carry 2 14-inch guns which were built in the United States for the Greek battleship *Salamis* (under construction in Germany) and seized *en route* by the British. Eight of 5900 tons and 7 knots speed carry 2 12-inch guns (taken from British predreadnought battleships) and 1 6-inch. They are 325 feet long, 87 feet broad, and draw 10.5 feet of water. Two of them, in 1918, were fitted with a single 18-inch gun on the deck aft. These 18-inch pieces were originally built for the *Furious* and removed when she became a sea-plane carrier. The speed is 6.7 knots. Two monitors of 6670 tons and 6 knots speed carry 2 15-inch and 8 4-inch. The length is 355 feet, beam 90 feet, draft 10.5 feet. Two of 8000 tons, and 14 knots speed are armed with 2 15-inch and 2 6-inch (or 8 4-inch?). The length is 405 feet, beam 88 feet, draft 11 feet. The large monitors carry their heavy guns in a single turret over a high barbette and the guns have high angle fire and very long range. The armor on the barbettes is about 10 inches thick, that on the turrets 10 to 13 inches; the belt and side armor is 2 to 6 inches. The small monitors have some slight hull protection. All the monitors have large "bulges" or "blisters" on their sides subdivided into a large number of air and water chambers. While these give practical immunity against torpedo attack they made the ships difficult to steer and reduce the speed to 2 or 3 knots in a moderate head sea. The British

monitors were used with great success on the Belgian coast, in the Mediterranean and in South Africa, where their light draft enabled them to place their heavy guns close in to the shore. The Italian monitors were of a different kind. Five of the *Monfalcone* type were built. The hull is a raft-like structure with sides only a few inches above water and the armored deck inclined upward in a gentle slope to the midship line. The turret on its barbette rises high above the hull and carries 2 15-inch guns on a high-angle mounting. One or two search-lights, 4 14-pounder guns, and some lighter pieces are fitted. The principal service of the vessels was on the coast of Italy in the vicinity of the mouth of the Piave River where they interfered seriously with the advancement of the Austrian left flank.

Q-SHIPS. These vessels were ordinary small freight steamers on which were mounted concealed guns. They were manned by British naval officers and seamen and were designed to act as decoys to submarines. The appearance was that of an ordinary "tramp" steamer and the officers and men wore civilian clothes. If torpedoed or fired upon by a German submarine they stopped at once. A "panic" party, ostensibly the officers and crew, left the ship in one or two boats while the rest of the ship's force lay in hiding ready to man the guns when a favorable opportunity offered. In almost every case the submarine approached closely and rose to the surface to complete the sinking by gunfire. When everything was as favorable as it was likely to be the guns were manned and fire opened on the submarine. In most cases the latter was sunk, and the Q-boat eventually sank if torpedoed. The necessity of keeping concealed on a sinking ship and of lying perfectly quiet while the ship was being shelled by the submarine as she approached led to many instances of extreme heroism.

SEAPLANE CARRIER. On land the military scouting plane has taken the place of cavalry for scouting purposes and does the work infinitely better. At sea, the naval seaplane has almost displaced the cruiser scout. But there are no airplane stations at sea so one must be provided. This is the seaplane carrier, a large vessel with a flying deck from end to end on which seaplanes may land or from which they may take off. In all navies battleships and large cruisers will in future carry one or more planes but until further developments, returning planes cannot land on a battleship nor in the water alongside except under favorable circumstances. This makes a vessel with a suitable landing deck a necessary auxiliary in the train of every important naval force. Such vessels are now under consideration in all navies and the British have built two—the *Argus* and *Furious*—and another, the *Eagle*, is under construction. The *Furious* is simply a very large light cruiser with a flying-deck fitted above. The others have two practically clear decks from stem to stern—the upper or flying deck absolutely clear. Beneath the flying deck is the hangar deck for the stowage and repair of planes. The *Eagle* and the *Argus* can each stow about 20 planes. These are raised and lowered to and from the flying deck by hoists large enough to take any standard British seaplane with the wings partly folded back. To clear the upper deck and prevent the formation of eddy currents that might disturb the seaplane in landing, the smoke pipes are led aft

below the hangar deck and discharge smoke and hot gases beyond the stern.

SUBMARINE BOATS. Since the close of the war we have obtained exact knowledge of the German boats and their operations and this enables us to form a definite opinion as to the sphere of usefulness of the submarine and of its qualifications and limitations. Some naval officers, government authorities, and writers on naval matters advocate abolishing the submarine and forbidding its use in war. The futility of such a prohibition is shown by the German disregard of almost every article of The Hague Conventions for ameliorating the brutalities of war. It has been argued that if the Allies failed to punish drastically the Germans for their brutal and inhuman conduct such failure would be a direct invitation to any other nation which was similarly without honor, humanity or shame to break any international covenants which might be made on this or any other subject. Properly employed, the submarine has a wide range of usefulness and is not likely to be given up—unless aircraft are developed to a point that is not now in sight. At present there is of course a temporary check in submarine building due to the reaction incident to the great cost of the war but much thought is still being given to submarine design and as the various navies are no longer pressed for time to meet a definite condition, new ideas are likely to have ample investigation and trial. Now that we know the difficulties under which the German submarines operated we cannot help being thankful for the strict blockade which kept building materials out of Germany's ruthless hands for, with an ample supply of them, she might have succeeded in her inhuman warfare on noncombatants. So scarce had the necessary materials become that in 1918, 23 German ships—several pre-dreadnoughts, 5 cruisers of the *Hansa* class, the light cruiser *Strassburg* and 15 other vessels—were broken up to obtain brass, copper, steel plating, and other structural material and fittings for submarine construction. At the outbreak of war Germany had less than 30 submarine boats ready for service and when the ruthless campaign was commenced (Feb. 1, 1917), there were not much more than 100. In April, 1917, there were 126; in July, 134; in October, 146; in December, 137; in January (1918), 133; in February, 136; in April, 128; in June, 113. Only a small percentage of the boats were actually engaged at any one time. In January, 1917, when circumstances were favorable, 12 per cent were actively engaged, 30 per cent in port refitting, resting, or undergoing repairs, 38 per cent undergoing trial, and 20 per cent incapacitated. All the foregoing figures were furnished by Captain Persius (German naval critic) in articles published since the close of hostilities. Captain Persius also confirms the accuracy of the table of submarines destroyed which was given out by the British Admiralty. The total number destroyed by the Allied forces during the war was 202. In 1917, the losses were 66 and the new boats placed in service 83. At the same time many boats not lost were incapacitated for a long time, some wholly so. Not only was it difficult to obtain material for new boats but construction was much slower than was generally believed to be the case. At the close of hostilities, 170 boats were building but they were not being completed fast enough to replace

losses. From various sources we conclude that about 556 boats were placed under construction before or during the war and about 386 were completed. Of the latter, about 184 were surrendered, or disabled and ordered broken up. Nine (possibly 10) U-boats were destroyed by American war vessels and 36 others damaged. The convoy system of defense against submarines was an unqualified success, not only as a means of protecting the merchant ships but as a means of destroying the U-boat. As the conveying craft (especially the destroyers) increased in number and the unconvoyed sailings were decreased the U-boats were further and further forced into attacking convoys or becoming a mere futile menace. So well were most of the later convoys protected that the dates of sailing were in some instances actually given out to induce the U-boats to attempt an attack and thereby expose themselves to destruction. The total number of ships convoyed after the institution of the system was 85,772, of which 433 or 0.51 per cent were lost. The U-boats' daily toll of ships decreased steadily from 10.43 during the second quarter of 1917 to 2.91 in the third quarter of 1918. And at this time destroyers were being produced at a rate that would soon have left few ships without adequate convoy. Of the fighting ships destroyed by U-boats, none (except the *Audacious*—if she was a U-boat victim, which is doubtful) was of great naval value. The most important losses were pre-dreadnoughts and obsolete armored or other cruisers which escaped being relegated to the scrap-heap or to early retirement from service by the exigencies of war—which can usually find some use for any ship with engines and hull in good condition. It therefore seems strange to read of Rear-Admiral Sir Percy Scott's recent reiteration of his pre-war prophecy that the submarine had driven the battleship from the sea (see *New Int. Encyc.*, vol. xxii, p. 356), as well as all other surface vessels. As a matter of fact the German U-boats not only failed to break the blockade of the German coast but they even failed to mitigate its stringency. Indeed, no blockade in the history of the world has been so effective. A few German commerce raiders slipped through it both ways by the use of neutral waters but no commercial blockade-runners ever passed in or out through the cordon of surface ships and the submarine itself was eventually reduced nearly to impotence as a war factor before hostilities ceased. The improvement in anti-submarine warfare—the convoy system, the depth bomb, the hydroplane, the aeroplane, and the development of the destroyer, the submarine chaser, the coastal motor boat, the Q-boat, and the patrol boat—has met the submarine in more difficult fields than were contemplated by Admiral Scott and has unqualifiedly defeated it. The submarine still remains a useful and dangerous weapon of war, but it no longer occupies the commanding position at one time claimed for it by its advocates—not Germans, who used it in outrageous defiance of humanity and honorable warfare, but advocates who desired its employment in legitimate fields only. As a useful war vessel the submarine is still undergoing development. The Germans did a good deal to improve its power and reliability but effected no radical changes. The stories of submarine cruisers of mammoth size and terrifying character were myths designed to encourage

the flagging faith of the German people and if possible to terrorize the Allies. No such vessel was ever built—probably nothing of the kind was seriously considered. Most of the German boats were of 900 tons or less. None equalled those of the British K class in size or speed. The most noteworthy peculiarity of the German boats was the size and number of guns. The largest of their late boats carried light 6-inch pieces of moderate muzzle velocity. The British submarines built during the war are of seven classes. Of these the most numerous were the E class, the number of which may have approximated 50. The submerged displacement of these boats is about 800 tons and the surface tonnage about 660; the corresponding speeds are 10 and 15 knots. The armament consists of 1 3-inch gun and 5 18-inch torpedo tubes. Of an F class we have no record. The G class, 10 in number, 975 and 700 tons, speeds 10 and 14 knots; armament, 1 3-inch gun, 5 18-inch tubes. The H class, 10 in number, were small boats of 500 tons. There were about 15 of the J class; tonnage, 1820 and 1210; speeds, 9.5 and 19 knots; armament, 2 3-inch or 1 4-inch and 6 18-inch tubes. The 21 boats of the K class are the largest ones built; tonnages 2650 and 1880. The propelling machinery is composed of steam turbines of 7200 horse power for high speed surface propulsion and an oil engine of 800 brake horse power which drives a dynamo furnishing current for charging the batteries or operating the main motors when cruising on the surface at low speed. The high surface speed is 24 knots, the submerged speed 9. The armament is 1 4-inch gun, 1 3-inch, 8 18-inch torpedo tubes. The 8 or 9 boats of the L class are smaller—1070 and 890 tons; speeds, 17.5 and 10.5 knots; armament, 1 4-inch and 6 18-inch torpedo tubes. The experimental boat *M-1* (about 1700 tons when cruising) is remarkable for carrying a short 12-inch gun. The largest American submarines are those of the A class, 10 in number, 1460 and 1220 tons; speeds, 20 and 10 to 12 knots; armament, 1 4-inch gun; 1 3-inch anti-aircraft piece; 8 torpedo tubes. The coastal type (S class) of which 50 are built or building, have a submerged displacement of 913 to 1000 tons and a surface displacement of 800 to 854 tons. The corresponding speeds are 12 and 15 knots. The surface cruising radius is 10,000 miles at 11 knots. The armament is 1 4-inch, 1 anti-aircraft gun, and 4 to 6 tubes. There are 27 boats of the R class (700 to 740 tons submerged), 16 of the O class (600 to 673 tons), 7 of the N class (430 tons), 11 of the L class (600 tons), 8 of the K class (520 to 530 tons), 9 of the H class (430 tons), and 4 of the G class (458 to 540 tons); the other small boats were all completed before 1914.

See SUBMARINES, also SUBMARINE AND ANTI-SUBMARINE OPERATIONS in the YEAR BOOK for 1918.

BAUM, LYMAN FRANK. Author and playwright, died at Los Angeles, Cal., May 6. He was born at Chittenango, N. Y., May 15, 1856; went into the newspaper business in 1880, and edited papers in South Dakota and Chicago. He wrote *Mother Goose in Prose* (1897). This was followed by a long series of humorous and extravagant tales including the *Wonderful Wizard of Oz*, (1900) which was turned into a musical extravaganza under the title of the *Wizard*.

of *Oz* and won him a wide reputation. It was produced in Chicago in 1902 and was at once an extraordinary success. The list of his writings are too numerous to quote here but after 1914 he wrote the *Scarecrow of Oz* (1915); *Rinkitink in Oz* (1916); *Babes in Birdland* (1917), and the *Tin Woodman of Oz* (1918).

BAVARIA. Formerly a kingdom forming a part of the German empire, but after November, 1918, a state with a republican form of government in the new German republic. Area, 30,346 square miles with a population (1910) of 6,887,291, including the Palatinate, whose area is 2372 square miles, with a population (1910) of 937,085. Nearly half of the population were gathered in towns with more than 2000 inhabitants in 1910. The chief cities are Munich, with a population of 596,467 in 1910, estimated at 606,014 at the end of 1912; Nuremberg, with a population of 333,142 in 1910, estimated at 359,529 at the end of 1912, and Augsburg with a population of 102,487 in 1910. In the census of 1910 the Roman Catholics comprised 70.61 per cent of the population, and the evangelicals 28.21. In 1914 the leading crops with their acreage and their yield in metric tons were as follows: Hay, 3,223,457 and 4,979,250; oats, 1,272,895 and 904,337; rye, 1,391,397 and 708,483; wheat, 730,242 and 446,359; potatoes, 945,700 and 4,372,844. The vine acreage in 1917 was 39,807, and the yield 9,321,466 gallons. The live-stock June 1, 1917, was: Horses, 272,667; cattle, 3,896,702; sheep, 616,464; pigs, 1,184,788; goats, 469,533. The budget is voted for two years. In each of the years 1918 and 1919 the estimates of the ordinary budget balanced at 852,791,912 marks; and the extraordinary budget at 28,779,676.

Down to November, 1918, the executive power was vested in the king whose crown was hereditary, and legislative power in the king and parliament which consisted of two houses, the upper, comprising the royal princes, archbishops, and other dignitaries, along with 18 life members appointed by the Crown, and the Lower House of 163 members elected for three years by direct vote. The king down to the closing months of 1918 was Ludwig III, born Jan. 7, 1845. The revolutionary movement at the time of the armistice overthrew the government and set up a republic under the provisional government, whose constitution was made public on Jan. 7, 1919. According to this, supreme power was vested in the people, and the Diet, consisting of one chamber was to be elected by universal, equal, direct, secret, and proportional suffrage; privileges of birth and caste were abolished; the church was separated from the state; and religious associations were to have equal rights and freedom of action. Upon the abdication of the dynasty the government was assumed by the Socialist leader, Kurt Eisner. One of the first acts of the revolution was to cut off all relations with the government of Berlin. See GERMANY.

BAYLOR UNIVERSITY. A co-educational institution conducted under the auspices of the Baptist General Convention of Texas, at Waco, Texas. In the fall of 1919 there were enrolled 614 women, and 510 men, and there were 56 members in the faculty. The endowment of the university is \$504,734 and the income for the year was \$293,571. The library contains 37,906 volumes. Baylor was founded in 1845,

and came under the present control in 1886. President, Samuel Palmer Brooks, LL.D.

BEAUX-ARTS, ECOLE DES. Celebrated national school of fine arts in France; founded in 1648. The school of architecture is one of its chief branches. At the beginning of October, 1919, a decree signed by the president reduced the term of office of teachers in the school of Beaux-Arts to five years instead of for life, but the engagement was renewable. The Minister and the Director of Beaux-Arts wished to render the teaching more active. It had been found that in too many cases the appointment to a chair was regarded as an honorable retirement, and the incumbents frequently were unable to attend to their duties. Moreover, the work was said to suffer from the retention of many who on account of old age or for other reasons were unable to render active service. The government argued that it was not reasonable to consider such positions merely posts of honor in reward for a life of hard work, and that education must be conducted in the interest of the student instead of in the interest of the professor.

BEAUX-ARTS INSTITUTE OF DESIGN. A society incorporated in 1916 to carry on the work previously conducted by the society of Beaux-Arts architects, run on a system similar to the Ecole des Beaux Arts of Paris. During 1917-1918 the enrollment was just about half of normal due to the war, and during 1918-1919 it increased but slightly. There are four departments: Architecture under F. A. Goaley, having 314 students enrolled for the year ending Aug. 1, 1919; sculpture under John Gregory, having 295 students; mural painting under Arthur Crisp, having 16 students; and interior decoration under Ernest F. Tyler, having 14 students. What is known as the Paris Prize is offered annually by the Society of Beaux Arts Architects; under its conditions the winner receives \$1200 per annum for two and a half years to study architecture in Paris at the Ecole des Beaux Arts. The competition is open to all male citizens of the United States under 32 years on July 1st. The officers in 1919 were: Thomas Hastings, chairman of the board of trustees; William Laurence Bottomley, secretary, and Lloyd Warren, treasurer and director.

BECKER, GEORGE FERDINAND. Geologist, died April 20. He was born in New York City Jan. 5, 1847, graduated at Harvard 1868 and studied at Heidelberg and Berlin. After serving as instructor in the University of California 1875-9 he became United States Geologist 1879-92 and afterwards held that position from 1894 on. He was a special agent of the 10th Census 1879-83. He made an examination of the gold and diamond mines of South Africa in 1896 and served as geologist with the army in the Philippine Islands 1898-9. In the period immediately preceding his death he was in charge of the Division of Chemistry and Physical Research in the United States Geological Survey. He was connected with the early geological survey in the west, notably that of Clarence King, and wrote report on the Comstock Lode, one of the first mining reports published by the Survey. In the United States Geological Survey he had charge for a long time of the investigations in dynamic geology and was instrumental in the establishment of the Carnegie Geophysical Laboratory. He performed important geological

work during his service in the Philippines. A list of his important writings is as follows: *Atomic Weight Determinations*, (1880); *Geology of the Comstock Lode*, (1882); *Statistics and Technology of the Precious Metals* (with S. F. Emmons, 1885); *Geology of Quicksilver Deposits of the Pacific Slope*, (1888); *Gold Fields of Southern Appalachians*, (1895); *Gold Fields of Alaska*, (1898); *Gold Fields of South Africa*, (1897); *Geology of the Philippine Islands*, (1901); *Experiments on Slaty Cleavage*, (1904); and *Tables of the Hyperbolic Functions* (with C. E. Van Orstrand, 1908).

BEEF. See **LIVE STOCK.**

BEER. See **LIQUORS.**

BEETHOVEN ASSOCIATION. See **MUSIC, Chamber Music.**

BET SUGAR. See **CHEMISTRY, INDUSTRIAL.**

BELGIAN CONGO. See **CONGO, BELGIAN.**

BELGIAN RELIEF. See **RELIEF FOR WAR VICTIMS.**

BELGIUM. A European kingdom lying between France and the Netherlands; restored to independence after the defeat of Germany in the autumn of 1918. Capital, Brussels.

AREA, POPULATION, ETC. The total area is 11,373 square miles and the population, Dec. 31, 1910, 7,423,784; estimated Dec. 31, 1912, 7,571,387. For details of population by provinces, see preceding **YEAR BOOK.** See also article, **AGRICULTURE.** The chief towns and population on Dec. 31, 1912, were Brussels, (with suburbs) 663,647; Antwerp, 312,884; Liège, 170,634; Ghent, 167,477. In 1910 those who spoke French only numbered 2,833,334; Flemish only, 3,220,662; French and Flemish, 871,288; German only, 31,415. Those who spoke all three languages were reported at 52,547. The majority of inhabitants professing a religion is Roman Catholic, but no recent figures are available. For educational and other statistics, see preceding **YEAR BOOKS.** It is required that each commune should have at least one primary school, and the costs of its maintenance rests upon the commune with subsidies from the states and provinces. There are numerous private or free schools which have been mostly under ecclesiastical control. There are four universities, namely, at Ghent, Liège, Brussels, and Louvain, of which the two first are state institutions and the two last free.

MINERAL PRODUCTION. The condition of the mines in Belgium, as in the rest of Europe that had suffered from the war, was lamentable. This was mainly due to the lack of manual labor on account of the war. Nevertheless in September the coal production was reported at 87 per cent of what it had been before the war. The number of miners in Belgium were placed at 98,000. They had not gone on strike but had obtained satisfaction for most of their claims. In the latter part of 1919 there was not only coal enough to run the railways, but Belgium seemed to be producing a larger proportion of the pre-war output than any European country. Belgium was even able to export coal at that time on account of the comparatively small demand of the factories which as yet had been only partially reopened.

ECONOMIC CONDITIONS. The following information in regard to the industrial and financial situation and the prospect of an early economic recovery is supplied by the Trade Commissioner, Oct. 25, 1919: The Belgians have always been

well known for their natural industry and application to the demands of modern production. It was the efficiency of the working classes and the manufacturers, bankers, and traders of Belgium which before the war placed it among the foremost commercial and industrial nations of the world, despite its size and lack of important raw materials. While there were numerous localized labor disagreements throughout Belgium after the armistice, there were no general strikes, and on the whole it may be said that labor here was perhaps more free from ultraradical tendencies than elsewhere in Europe. The deportation of numbers of Belgian workmen and the forced idleness of many others during the war could not fail to have a demoralizing effect, but this is partly balanced by Belgium's comparatively small loss of man power. There were fewer workmen of military age killed or disabled than in the other belligerent countries, because the German occupation of the country proceeded so rapidly that it was impossible to mobilize the full strength of the Belgian army, and many men of military age were unable to join the colors.

During the war there was enforced idleness on the part of a large percentage of the industrial workers, while others were deported to Germany. At the time of the armistice there were 800,000 persons, mostly industrial workers, drawing the nonemployment allowance (*chômage*) granted by the government. In February the number of *chômeurs* was still 720,000, while in September there was but 200,000 dependent upon government assistance. *Chômage* allowances cost the government about 57,000,000 francs in December, 1918, as compared with about 15,000,000 francs per month in the fall of 1919.

The Belgian government actively intervened to settle labor disputes, with very gratifying results. Chiefly as a result of the *chômage* system, it was able to force arbitration in nearly all cases and it had a large staff of labor inspectors empowered to adjudicate disputes before a crisis is reached. While wages increased in most industries at least 100 per cent, and in some cases considerably more, they had not risen to the extent that the cost of living had advanced. The labor-union movement is well advanced in Belgium, but the union leaders are said to be generally disposed to adopt conciliatory methods and to avoid strikes wherever possible. On the whole it may be said that labor troubles after the armistice were far less alarming in Belgium than in most industrial countries. Another important factor in the probable early recovery of Belgium is its comparatively favorable financial situation. The public debt of Belgium in 1914 was slightly less than 5,000,000,000 francs, which largely represented advances for the purchase of the Belgian railways and the improvement of the internal waterways, which have reached such a high stage of development in Belgium. In other words, the public debt was based upon existing properties yielding a profitable return to the government. The taxes in Belgium before the war were light in comparison with most European countries, a condition which was reflected in the general prosperity of Belgian industry. The budget was balanced without difficulty, all current disbursements being met regularly out of current receipts. Interest on the prewar public debt was

almost met by the net profits of the State railways. Belgian industry was prosperous and expanding, and Belgian credit of the best. Before the war the per capita wealth of Belgium was estimated at 7247 francs, a figure exceeded only by Great Britain, France, and Switzerland among the countries of Europe. The annual revenue in 1914 was estimated at 6,000,000,000 francs, a considerable part of which was derived from foreign investments in Russia, the Far East, South America, and other parts of the world. The estimated value of personal property, including foreign investments, was 13,820,000,000 francs in 1913, of which perhaps 2,000,000,000 francs was owned by foreigners.

The prewar debt, totaling 4,887,254,000 francs, had been increased in 1919 to a grand total of 19,780,054,000 francs. This amount includes 2,347,800,000 francs represented by interprovincial bonds covering German fines, and 7,800,000,000 francs for the retirement of the German currency. It includes also 1,255,000,000 francs, representing advances from allied countries after the armistice and up to June, 1919, and 500,000,000 francs for foreign loans not yet contracted. German indemnities stipulated by the Treaty of Versailles were, of course, relied on for the liquidation of a large part of this war debt, 2,500,000,000 francs being payable before May 1, 1921. Before the war the annual interest on the Belgian public debt was about 220,000,000 francs, while the charges contemplated by the present budget total 417,000,000 francs, after deducting the initial payments and reparations to which Germany is obligated. This was believed to be a better showing than can be made by any other major belligerent country. The financial liquidation of the war was nevertheless a matter of great concern, particularly since so much depended upon the ability of Germany to meet its obligations under the Peace Treaty for a number of years to come. The three vital questions with which the Belgian government was immediately concerned were the rapid deflation of the currency, the valorization of the German liabilities, and the reestablishment of a normal budget with receipts as nearly as possible balancing expenditures. Of immediate moment was the reduction of the fiduciary circulation, which increased from 975,000,000 francs in 1914 to over 4,500,000,000 francs in September, 1919. In order to restore the equilibrium of the budget fundamental changes in the fiscal system were under consideration. Before the war direct taxation produced only 100,000,000 francs annually, and indirect taxes were also comparatively unproductive, partly owing to the fact that Belgium is a low tariff country.

In April, 1919, a tax on war profits was adopted, the rate varying from 20 to 80 per cent, calculated on the excess over the average rate of profit during the last two prewar years. It is expected, however, that this new tax will yield not more than 100,000,000 francs during the present year. In July the Ministry of Finance presented to Parliament a law containing drastic modifications in the laws imposing stamp taxes, taxes on patents, etc., but if these new imposts do not yield sufficient revenue the government contemplates the establishment of a revenue tax.

The retirement of the German marks and the complete restoration of franc circulation was

virtually completed in 1919, thanks to the assistance of the Banque Nationale de Belgique, which fortunately remained intact throughout the German occupation.

EXPORTS. It was reported at the end of October that Belgian exports were reviving. The exportation of coal was considerable and beet sugar was also exported, the sugar industry having recovered to such an extent that it was able to produce more even than before the war. Belgium was also exporting large quantities of glass and to some extent matches, yarns, and textiles.

RAILWAYS. The railroads of Belgium were being rapidly restored in 1919. Germany had replaced a large part of the cars and locomotives which were taken away, and slow freight by the autumn of 1919 was moving almost normally. On the main railroads passenger traffic was quite as intensive and as rapid as before the war. This was due to rapid reorganization and reconstruction by engineering and operating staffs. When the armistice was signed 1500 kilometers of Belgian railways had been destroyed by the Germans, but so rapid was the work of repair that by Sept. 1, 1919, only 300 kilometers remained out of order. On the principal railway from Ostend to Brussels extraordinary work was accomplished, and during the summer the normal service was run on the embankment line which was constructed at the time of the Ghent Exhibition, and all work had been more or less restored to its pre-war condition. The bridges across the Lys and Scheldt Rivers were being reconstructed and in the meantime the service was maintained over temporary bridges. Toward the close of the year remarkable railway progress was reported. When the armistice was formed there were only 500 locomotives, and many of these needing repairs, on the Belgian state railways. At the beginning of November, it was reported that there were 2000 passenger trains in operation. In some quarters of the country, as between Brussels and Antwerp, the passenger service was three-fourths of its pre-war efficiency; elsewhere it was from one-half to three-fifths. As to freight, under pre-war conditions there were about 9200 cars on Belgian state railways which moved from 250,000 to 260,000 tons; in October the state railways were moving 178,000 tons. Despite the enormous destruction in war time it was reported at the end of October that practically the whole system was in operation.

FINANCE. In 1919 a bill was proposed to meet the deficit in the budget by taxing inheritance. Although the tax was high it was financial in its purpose and not socialistic. It fell moderately upon the small inheritances in direct line, and heavily upon large fortunes inherited by persons unrelated. The progressive principle was at the basis of it. The succession duties for direct inheritance did not exceed 5 per cent; for indirect, that is for property inherited by persons not related to the testator, it might be as high as 50 per cent. The law provided that the property of persons dying intestate should fall to the state if the relationship passed the fourth degree. Under the former laws relationship up to the twelfth degree was recognized as giving inheritance rights.

ARMY. Shortly before the war, that is early in 1913, a new military law was passed providing for recruiting by means of annual calls to

the colors and voluntary enlistment; service for 15 months in the infantry, fortress artillery, and engineers; 21 months in the field artillery, and 24 months in the cavalry; the total length of service being eight years in the active army, followed by five years in the reserve. During the war compulsory service went into effect on men between the ages of 18 and 40. The reorganization of the army on French territory followed the occupation of the country by the Germans. It had then a strength of about 80,000 men. In the first part of the campaign of 1914 this army was partly destroyed and a new army was formed chiefly from volunteers. At the time of the armistice the field army was placed at 204,000 men including 66 generals and 8400 officers, but not including certain relay troops and battalions of engineers made up of veterans who had been discharged. Forty-four thousand horses imported from America had been distributed among the several units. In 1919 the class under instruction was to replace the demobilized troops. The Minister of War had arranged to relieve from service the old field army for the month of November. A new law was voted by parliament fixing the effectives at 100,000 on a peace footing and 320,000 on a war footing. After the armistice three divisions of Belgian infantry had been sent to reinforce the army of occupation on the right bank of the Rhine, and for these the French military organization was adopted. These three divisions were returning to Belgium during the latter part of the summer. In September figures showing the losses and the present strength of the army were published. The main points were as follows: In 1919 the Belgian army consisted of 365,000 soldiers and 14,050 officers; the fighting units on a war footing had an effective average of 136,000 troops and 4750 officers; in the rear there were on the average 70,000 troops and 2600 officers, and besides that some 22,000 men were on leave pending employment in the munition works and in the public services. During the war recruiting was mainly confined to the territory that had not been invaded, and upon the refugees in Allied countries. Exact returns of the killed and wounded were not available, but it appeared that without counting the missing since the beginning of the war, the number of whom was placed at many thousands, and among whom many must have been killed, the figures of losses placed the men at 20,148 and the officers at 982 or at the rate of one officer for 20 or 21 men. This figure is probably too low. It places the ratio to the number of the mobilized at 6.98 per cent for the officers, and 5.51 per cent for the troops, but this refers to the entire force mobilized and not to those really engaged in battle. The number of soldiers who died in the hospital was placed at 9422 of whom 4914 died of wounds, and 4058 of disease. The number admitted to the hospital was 200,409, of whom 122,987 were admitted for sickness and 77,422 for wounds. The wounded were classified as follows: The severely wounded, 19,785; slightly wounded, 57,637; recovered, 160,052. The men suffering amputation number 1387, and the blind, 47. These figures do not include the number of the wounded and sick who were in the invaded territory before the battle of the Yser. The ratio to the number of combatants was: Severely wounded, 14.05 per cent; slightly wounded, 40.94 per cent.

GOVERNMENT. The executive power is vested in a king and a responsible ministry and the legislative power in the king, senate and Chamber of Representatives. The Senate consists of 120 members of whom 27 are elected by the provincial councils and the remainder elected directly. The Chamber according to the law of May 2, 1912, had 186 members. Previous to the election of 1919 they were chosen by plural suffrage. According to the rule prevailing before the war every citizen over 25 years of age who had lived for a year in the same commune had one vote; and every citizen over 25 with legitimate issue and paying five francs or more a year in house tax had a supplementary vote. Two supplementary votes were also given to students of 25 and over who had received a certain diploma or certificate of instruction and there were other qualifications bringing supplementary votes, but no person was to have more than three votes. In 1912-13 the number of electors for the Chamber was 1,745,666. Of these 1,005,094 had one vote; 412,721, two votes, and 327,851, three votes. The election of 1919 (see below) proceeded for the first time on the principle of one man one vote. King Albert was born Apr. 7, 1875 and succeeded to the throne Dec. 17, 1909. He married Oct. 2, 1900, Princess Elizabeth of Bavaria. Children: Prince Leopold, Duke of Brabant (born Nov. 3, 1901); Prince Charles, Count of Flanders (born Oct. 10, 1903); and Princess Marie José (born Aug. 4, 1906). The ministry at the beginning of 1919 was as follows: Prime Minister and Minister of Finance, M. Delacroix; Minister of Economic Affairs, M. Jaspar; Minister of Foreign Affairs, M. Paul Hymans; Minister of Education, M. Harmignies; Minister of Interior, Baron de Broqueville; Minister of Agriculture, Baron Ruzette; Minister of War, M. Masson; Minister of Justice, M. E. Vandervelde; Minister of the Colonies, M. Franck; Minister of Industry and Labor, M. Wauters; Minister of Railways, Marine, Posts and Telegraphs, M. J. Renkin; Minister of Public Works, M. Anseele.

GENERAL CONDITIONS. After the armistice the country was administered by the national coalition cabinet mentioned. It was composed of three parties, the Catholics, Liberals, and Socialists and represented a balance between the Walloons and Flemings. The Socialist members had done good service in the interest of industrial peace, by discouraging strikes, and other members also had shown ability as administrators, in the economic domain, such as M. Renkin, Minister of Railways, and M. Jaspar, Minister of Economic Affairs. The programme of the government comprised universal suffrage, facilitation of amendments to the constitution, the reform of the penal code, and the creation of a Flemish university. The King on reëntering Brussels had promised suffrage without restrictions, and it was decided to hold the next elections on the principle of one man, one vote. On May 17th the government declared that the estimated damage which Belgium had sustained at the hands of Germany was \$7,600,000,000, of which \$1,705,700,000 represented the losses to industry both from actual damage and from inactivity. On June 25th a bill was presented in the Chamber by the government placing in the hands of a self-governing body to be known as the National Belgian Railways Administration the management of the railways;

this body to be responsible to parliament and to be a branch of the civil service. According to the Minister of War the slow recuperation of Belgium was due to the extreme severity of the war régime. As to the question of the river Escaut (see WAR OF THE NATIONS), he said that complete possession of it was the only way of giving Belgium an effective means of defense and replacing the guarantee of permanent neutrality. The Belgian budget had been 350,000,000 francs a year before the war. In 1920 it would be quadrupled. The war budget would be far more than any that preceded. The pension list alone including besides military pensions, allowances to the sick, widows, discharged soldiers, and officers for length of service would exceed 100,000,000 francs, and heavy burdens were necessary to cover the expenses. It was argued that in these extreme circumstances political quarrels had no place and that the question of woman's vote ought not to come up before the dissolution of parliament. The cost of living was increasing each day and the only way of meeting it was increased production. In the summer a law concerning freedom of labor was under discussion. This looked to the suppression of the article of the penal code concerning attempts to restrict the liberty of labor. This article sought to repress such attempts. The Socialists including their leader, M. Vandervelde, a member of the Cabinet, had for many years protested against this article and had already brought in a measure to repeal it. Other members of the cabinet were unwilling to go so far. The question was difficult for it involved the principle of individual liberty. The article guaranteed the liberty of labor and the suppression of it seemed a very radical measure in a country which is especially industrial. The Liberal party of the Left was especially opposed to it. Finally the ministry agreed on a text which substituted for the suppression of the text upon liberty of labor a formula which guaranteed more completely the freedom of association. The penalties imposed by the original article were to be greatly reduced. It was supposed that the bill if passed would greatly strengthen the power of the unions and assure them a firmer hold on labor organization. There was strong opposition to it in parliament.

POLITICAL CONDITIONS. In the summer public opinion was concerned with the approaching legislative elections which were expected to take place in November. There were signs that the union hitherto maintained between the Catholics, Liberals, and Socialists was weakening. The economic crisis had lately directed the policy of the Socialist party. All political groups were working on a practical electoral programme. One of the programmes put forth by the Socialist party included: Nationalization of mines; reform of mine inspection; the participation of the working men in the control; pension of two francs a day to workmen in all trades. The same programme was adopted by the federation of miners which demanded that the state should resume the exploitation of the new mineral deposits of Campine and Hainault while waiting for nationalization of all the coal basins. The language question continued to cause dissension. The Minister of War declared that at present recommendations had been made all tending to the creation of two separate ad-

ministrations and two armies. This was for the purpose of guaranteeing the self-government of the Flemish and Walloon elements. But the unity of the country was the first consideration and the new legislature must address itself to this question from that point of view and must solve in particular the problem of the university. The latter problem was under discussion in Belgium during the months following the armistice and it was understood that the government was at work upon plans. Public opinion seemed to be entirely against the Flemish programme that the Germans had carried out, involving the transformation of the French university of Ghent into a Flemish university. It was hard to determine by what means the aspirations of the Flemings for higher instruction in their mother tongue could be realized without injustice to the University of Ghent and to French culture in Flanders. There was question whether there should be a doubling of the course. Could they without inconvenience double the course of the independent Flemish university at Ghent or at Mecklin or Bruges or Antwerp? At Ghent professional opinion seemed to be entirely against any change that would affect the character, autonomy, and influence of the French university. The teaching bodies and members of the Ghent bar had pronounced against it. In August a ministry decided to appoint a committee to consider the means of forming an independent Flemish university.

THE ELECTIONS. The precise result of the elections was known early in December. The new Chamber according to press reports was constituted as follows: Catholics, 77; Socialists, 67; Liberals, 33; Flemish "Activists," 3; Middle-class Representatives, 2; Representatives of Combatants, 3; Nationalist Party, 1. The Socialists gained 27 seats while the Catholics lost 24 and the Liberals lost 12. The new electoral system consisted in applying the principle of minority representation to the district and not to the province. It was criticized for its working by all the parties. The Socialists' victory was explained as due mainly to the introduction of universal suffrage pure and simple and to reduction of the voting age from 25 to 21 years. It was also explained in part by the fact that the Socialist party in Belgium was unanimous in condemning Bolshevism. Not only was it free from any heresy on this score but it stood well with the people on account of its patriotism during the war and its refusal after the armistice to resume relations with the German Social Democracy. The Socialists of Belgium moreover have a comparatively moderate programme (see SOCIALISM, Belgium). The senatorial elections had the following results: Catholics 43; Liberals 30; Socialists 20. This however does not include 27 senators, to be elected later by the provincial councils. A striking feature of the returns was the loss by the Catholic party of the majority which it had kept for the past 35 years. This loss was not unforeseen for the elections for a long time past had indicated that the party had been over-represented in parliament. Socialist gains had been expected but it had not been anticipated that the labor element would show such strength. In the new parliament it was represented by 66 deputies. Another result of the ballot of November 16 was that it placed in the Chamber a very

large number of the Flemish group (*Flamingants*). The success of the Flemish *Flamingants* resulted in an offer of a portfolio to one of the leaders of the active wing of that party. By a law voted at the last session of parliament the lists presented by any one party in different districts of the provinces could be associated. If this modification had not been made the strongest political groups would have profited and the Catholics would have kept 83 seats in the Chamber while 10 supplementary seats would have been given to the Catholics of the Flemish region. The Socialists also would have had 72 seats instead of 66. The members of the "Front party" or Christian Democrats each obtained an additional seat as a result of the new system, and the partisans of a national policy though they received few votes also gained a seat as a result of the change. The main party to profit from it, however, was the Liberal group. But for this change they would have been still further reduced. An incident that attracted attention on the eve of the elections was the proceeding against the *Socialiste belge*, organ of the revolutionary party, which during the war was published in the Netherlands under the editorship of M. Camille Huysmans, secretary of the bureau of the International. It was accused of showing pro-German tendencies, and being plainly defeatist. The director, M. Huysmans, had been a deputy from Brussels, but in the elections he stood for Antwerp on the same list with a militant contributor to his paper whose course had been suspected during the war. Against him was a representative of the Labor party. The Labor party appointed M. Emile Vandervelde to go to Antwerp and defend Huysmans's list and Huysmans's candidacy at a large public meeting. This course on the part of M. Vandervelde was attacked as inconsistent with his position as minister of justice. Another feature of the campaign was an address by M. Paul Hymans, minister of foreign affairs, in which he appealed for harmony in the interest of reconstruction, and declared that no party could by itself assume responsibility for the heavy burdens that were inevitable. Some 500,000,000 of new taxes must be imposed; the senate must be reorganized and the referendum must be introduced. As to the foreign situation he declared that the position of Belgium had changed and that the country was now a free sovereign state. Belgium must therefore have in the future a definite international policy. As to the language question the Liberal leader pointed out that this question did not exist in the Walloon provinces and that in the Flemish provinces it must be solved in accordance with the entire liberty of the father of the family. The Liberals according to him were firmly opposed to the suppression of the University of Ghent which was a centre of French culture and civilization. The Walloon League also pressed the language issue on the public attention during its session at Namur, after the elections when it condemned those who had coöperated with the Germans during the occupation with a view to dividing the country. It declared in favor of provincial decentralization, which, however, was not a popular policy in Belgium. See LABOR LEGISLATION; SOCIAL INSURANCE.

BELL, JAMES D. American soldier and politician, died at Flatbush, New York, November 1.

On the previous September he had been elected Commander-in-Chief of the Grand Army of the Republic. He was born in New York City in 1845; entered the Civil War at the age of 16; and served for the most part in Virginia, where he was twice wounded. In 1880 he was admitted to the bar and practiced law for the next 25 years. He was a Democrat in politics and was made Police Commissioner of Brooklyn in 1888, after which he was for 10 years commissioner and secretary of the Williamsburg Bridge Commission. After 1911 he was chairman of the general Democratic committee of King's County. He was for many years one of the leading figures of the Grand Army of the Republic.

BELL, JAMES FRANKLIN. American major-general, died in New York City, January 9. He was born at Shelbyville, Ky., Jan. 9, 1856; graduated at West Point in 1878 and served with the 7th Cavalry in the West. He was afterwards in the Spanish-American campaign in the Philippines and against the natives; was awarded the Congress medal of honor in 1899; was chief of staff of the United States army from 1906 to 1910; commander of the Philippine Division 1911 to 1914; of the Second Division United States army in Texas from 1914 to 1915; of the Western Department from 1915 to 1917, and of the Eastern Department for a few months in 1917 when he was appointed commander of the 77th Division of the National army at Camp Upton.

BELL, JAMES MONTGOMERY. American soldier, died at Los Angeles, Cal., September 17. He was born at Williamsburg, Pa., Oct. 1, 1837; graduated at Wittenberg College in 1862, and entered the Union army in the Ohio infantry during the Civil War throughout which he served with distinction, being brevetted for his gallant services in the Battle of the Wilderness, etc. He served on the Indian frontier, from 1866 to 1898 and in the following year was sent to the Philippine Islands where he served as military governor of the Southern Luzon district. He retired in 1901.

BENEFACTIONS. See GIFTS AND BEQUESTS.

BENESH, EDWARD. Representative of Czecho-Slovakia at the Paris Peace Conference. He was foreign minister of the Czecho-Slovak republic. He had been a student of sociology and had taught at the Czech university of Prague. In his youth he had been a pupil of Professor Masaryk, now President of the Republic. Early in the war he made his escape from Bohemia and joined Masaryk in the foundation of the Czecho-Slovak Council. He also aided in raising the Czecho-Slovak army and in securing recognition of the Czecho-Slovak state by the Allies.

BEREA COLLEGE. A non-sectarian co-educational institution, located at Berea, Ky. In the summer session of 1919 there were 205 students, and in the fall, 1794. There was also a training school of 105. The teaching force numbered 81. The library contained more than 35,000 volumes. Productive endowment, \$1,345,588; income therefrom, \$55,649; rental properties, \$74,656; net income last year, \$2843; total income, \$58,492. President, William Goodell Frost, Ph.D., LL.D.

BERESFORD, ADMIRAL CHARLES WILLIAM DE LA POER. (LORD BERESFORD.) British naval of-

ficer, died at Langwell, Scotland, September 6. For many years before his death he was a leading naval administrator and authority on naval matters. He was born in Ireland Feb. 10, 1846, and became a naval cadet in 1859. He rose to the rank of lieutenant in 1868, commander in 1875, captain in 1882, and rear-admiral in 1897. During this period he commanded the *Condor* in the bombardment of Alexandria in 1882 and after the occupation of the city served as chief of police—was honored with medals for gallantry and meritorious services; served with the Nile Column of the Gordon Relief Expedition in 1884; commanded (1885) the naval brigade at the battle of Abu Klea and other engagements; led the expedition which rescued Sir Charles Wilson's party, and for this and other distinguished services in the Sudan received a vote of thanks from both Houses of Parliament; he was made Lord Commissioner of the Admiralty in 1886 but resigned on account of a difference of opinion over the strength of the fleet; was member of Parliament 1874–80, and 1885–90. In 1898 in the course of a journey around the world he visited the United States where he made speeches on behalf of the "open door" policy in China. After holding other important commands he was commander-in-chief of the Mediterranean fleet 1905–07 and the Channel fleet from 1907 to 1909. He retired in 1911 and was member of Parliament from Portsmouth on the Unionist ticket 1910–16. He wrote extensively on naval subjects and on Egypt besides the following books: *Nelson and His Times* (1898–1905); *The Breakup of China* (1899); *The Betrayal* (1912), and *Memories* (1914).

BERKSHIRE FESTIVAL. See *MUSIC, Chamber-Music.*

BERMUDA. A group of small islands in the West Atlantic about 580 miles from Cape Hatteras, N. C., and 677 miles from New York, belonging to the West Indies, but detached from the other groups. They are celebrated for their climate and scenery and for many years have been a favorite resort for Americans. Some 20 of them are inhabited. Total area, 19.3 square miles; population (Jan. 1, 1918) 21,629, of whom 7369 were whites. American visitors have averaged about 20,000 annually. Commerce and finance statistics follow:

	1914	1915	1916	1917
Imports	£265,611	£279,828	£234,799	£274,493
Exports	106,661	107,666	139,825	207,714
Revenue	80,504	106,467	107,055	100,447
Expenditure...	89,575	97,643	109,652	105,867
Shipping *....		1,748,337	1,630,163	547,835

* Tonnage entered and cleared.

The chief imports in 1917 were provisions, flour and meal, cotton goods, butter, ale and beer, hardware and cutlery, groceries, oats, coal, sugar, apparel, leather wares, cattle, etc. The chief exports were onions, potatoes, and other vegetables. It is governed by a governor, assisted by an executive council of six members and a legislative council of nine members, both appointed by the crown, and a representative house of assembly of 36 members. Governor at the beginning of 1919, Sir James Willcocks.

BERTIE, FRANCIS LEVESON, first Baron of Thame, British diplomat, died in London September 26. He was born Aug. 17, 1844, the

second son of the Earl of Abingdon, and entered the Foreign Office in 1863. He was in the special embassy to Berlin in 1868 and in 1894 was appointed Under-Secretary of State for Foreign Affairs. From 1896 to 1903 he was chairman of the Uganda railway committee and then was appointed ambassador to Rome, where he remained until 1905 when he went to Paris.

BESSARABIA. A former government of the Russian empire, reaching from Galicia south toward the Black Sea, with Podolia and Kherson on the north and east, Moldavia on the south-west and west, and Dobrudja on the south. Area, 17,143 square miles; population, estimated (Jan. 1, 1915), 2,686,600. The racial elements are Moldavians and other Rumanians, Little Russians, Poles, Bulgars, Jews, Armenians, Greeks and Tatars, of whom over two million are said to be dependent on agriculture. As noted in the *YEAR BOOK* for 1918 there was a movement after the defeat of the Central Powers in November for union with Rumania. The Rumanians were active in the country from that time on and their course was criticized extensively in liberal quarters as part of a policy of imperialism or expansion at variance with the principles by which the Peace Conference was supposed to be guided. On the other hand the Rumanian side of the question was set forth by the Bessarabian delegate to the Peace Conference in a statement in which some of the chief points are as follows: Although the Rumanian authorities were suspected in certain circles of hostility to the democratic tendencies of the country they showed respect for the popular rights gained in Bessarabia from the revolution and they favored agrarian reform, democratic decentralization, and the political equality of all the nationalities. The result was to draw toward Rumania the liberal element in the population and the Rumanian universities were crowded with Bessarabian students. During the elections for the Rumanian Constituent Assembly the Rumanian authorities followed their rule of interfering as little as possible with the internal affairs of Bessarabia. The results of the election were not known at the close of the year 1919 but so far as the figures were available they indicated that the successful candidates all favored union with Rumania. The attitude of Rumania as characterized by this Rumanian delegate from Bessarabia is one of self-denial and sacrifice. He declared that the kingdom of Rumania subsidized the whole administration, the revenue from the country amounting only to 30 per cent of the expenditure. The Peace Conference had not settled the status of Bessarabia at the close of the year and the question was still pending as it was in regard to the other countries that had sought emancipation from Russia.

BETHAM-EDWARDS, MATILDA. See *EDWARDS, MATILDA BETHAM.*

BETHLEHEM BACH FESTIVAL. See *MUSIC, Festivals.*

BIBLE SOCIETY, AMERICAN. A society founded in 1816 for the wider circulation of the Bible to all people, without denominational or racial discrimination. It supplies these Bibles at practically cost prices. It has printed the Scriptures in 67 languages at the Bible House, New York, and circulated them in more than 150 languages. In 1918 (the latest available statistics) the society issued Bibles in the United

States in 75 languages; abroad in 66 languages. Over 150 languages and dialects have received a written form first through translators of the Bible. The Society has shared extensively in this work. The Scriptures, in whole or in part have been printed in 650 languages. During 1918 the Society issued at home, 4,480,058 volumes; abroad, 1,580,649; a total of 6,040,707 as against a total in 1917 of 4,818,564 volumes. It issued 1131 volumes for the blind. During its 103 years it has issued in the United States 80,962,687 Scriptures; in foreign lands, 53,188,943; a total of 134,151,630 volumes. As has always been its custom, it has supplied Bibles to the armies of whatever countries were at war. During 1918 it supplied 3,292,734 volumes to the American forces, and about 30,000 to European forces. Combining the issues at home (4,541,455) and abroad (1,846,488) from August, 1914 to December, 1918, the Society has furnished 6,387,943 volumes in war service. The work is carried on through 11 foreign agencies with 993 workers and nine agencies in America with 621 workers, besides many societies, hospitals, and religious organizations. The Society has permanent trust funds totaling \$2,140,563.77. During 1918 it received \$101,694 in legacies. The Northwestern Agency headed by Rev. S. H. Kirkbride showed a decided increase over 1917, 276,973 volumes being put in circulation in 47 different languages and dialects. The Colored Agency, also showing an increase over 1917, found 3085 families with no Bibles at all in its territory. The report of Rev. Frank P. Parkin of the Atlantic Agency shows a growing interest on the part of college students in the distribution of the Scriptures. During the year the tentative version prepared by the Committee in Madrid has been the subject of review and comment by many in the Spanish-speaking field. These comments are being gathered together for final action preparatory to the bringing out of the edition for general use. The demand for an edition of the Portuguese Version with references is increasing and most insistent. The revision of the Psalms in Siamese was completed, while work on the translation of the Four Gospels into Mukri Kurdish in Levant, and the translation of St. Mark for the Kaw and Lahu mountain tribes in Siam, has been progressing. The *Bible Society Record* is the official organ of the Society. The officers in 1919 were: President, Churchill H. Cutting of New York; general secretaries, Rev. William I. Haven, and Frank H. Mann, and treasurer, William Foulke. The national headquarters of the Society are at Bible House, Astor Place, New York City.

BICYCLING. See CYCLING.

BIKANER, MARAJAH OF. See SINGH, Sir GANGA.

BILLIARDS and POOL. Billiards attained its highest popularity in 1919, both professional and amateur players entering the various tournaments in large numbers. William F. Hoppe once more reigned supreme in professional circles as a handler of the cue and Robert L. Cannefax retained his crown in three-cushion play. An upset occurred in pocket billiards, or pool, when Frank Taberski, the title holder, was forced to yield his laurels to Ralph Greenleaf.

Among the amateurs David McAndless came to the fore by winning the 16th annual Class A

balkline 18.2 championship tournament contested at the Chicago Athletic Association. The Class B honors went to George T. Moon, Jr., and Joseph Neustadt captured the Class C title. A national three-cushion carom championship for amateurs was held for the first time, the winner being Arthur Newman. J. Howard Shoemaker again triumphed in the pocket billiards competition.

BIOGRAPHY. See FRENCH LITERATURE; GERMAN LITERATURE; ENGLISH AND AMERICAN, ETC.

BIOLOGY. See ZOOLOGY.

BIRDS. See ZOOLOGY.

BIRTH CONTROL. During the past few years there has been a very active movement in the United States for the repeal of laws prohibiting the dissemination of knowledge concerning the use of contraceptives. Most prominent in this movement were Mrs. Margaret Sanger and Mrs. Ethel Byrne. Mrs. Sanger is Editor of *The Birth Control Review*, a monthly established in 1917 by the leaders of the movement, at 104 Fifth Avenue, New York City. She has been arrested several times during the past year and has thus become prominent before the public. Prior to the movement in the United States, organizations to promote birth control had been established in almost every European country. The national bodies of England (formed in 1877), Holland (1885), Germany (1889), France (1895), Bohemia-Austria (1901), Spain (1904), Brazil (1905), Belgium (1906), Cuba (1907), Switzerland (1908), Portugal, Sweden (1911), Italy (1913), Mexico (1918), and of Algeria constitute the Federation of Neo-Malthusian Leagues with Dr. Alice Drysdale Vickery, London, president. In the United States supporting groups have been formed at Ann Arbor, Mich.; Bangor, Me.; Boston; Chicago; Cleveland; Detroit; Elizabeth City, N. J.; Harrisburg; Los Angeles; Minneapolis; New York; Pittsburg; Portland, Ore.; Radnor, Pa.; Rochester; St. Louis; St. Paul; San Francisco; Seattle; Summit, N. J., and Washington, D. C. The organizations at New York include the Committee of One Thousand, with Dr. Ira S. Wile, as chairman; the Woman's Committee of One Hundred, with Mrs. Amos Pinchot, chairman; the National Birth Control League at 200 Fifth Avenue, with Mrs. Maxwell Hyde as chairman; and The Voluntary Parenthood League, with Mary Ware Dennett as director. The Voluntary Parenthood League held its first public meeting on April 10th, and is the fourth organization in New York City whose purpose is to secure intelligent birth control.

In New York, where it is unlawful to impart information regarding the use of contraceptives, the movement to repeal the law has been vigorously opposed. In general, the movement has been aided by prominent individuals and liberal journals. On Dec. 31, 1918, Margaret Sanger and Kitty Marion were arrested in New York City. The former was arrested on the ground that her article "Birth Control or Abortion," which appeared in the *Birth Control Review*, was obscene. Kitty Marion was arrested for having sold the article. The subject matter of the article was similar to that found in the pamphlets on sex issued by the War Department, the Y. W. C. A., and other social hygiene associations and the obscenity charges were dismissed on Jan. 18, 1919. George Swasey and

Kitty Marion were arrested on August 9th. No charge was pressed against the latter, but Swasey was convicted. He was sentenced to serve 10 days in jail or pay \$50 because he had discussed birth control in the presence of children. This case has been appealed. The question, whether birth control is women's inherent right, is still unanswered. Margaret Sanger had been previously arrested on Oct. 26, 1916, for operating a birth control clinic in Brooklyn. She was sentenced to 30 days in jail and served her sentence. The case was appealed on principle and finally reached the Federal Supreme Court, Oct. 12, 1919. The case was dismissed without an opinion because the court held that it had no jurisdiction.

The medical profession is not unanimous in its attitude toward the movement. In an editorial of its March issue, *American Medicine* came out strongly for birth control. It observed that the popular misconception of the birth control movement is that it stands for birth prevention and the small family. This impression is entirely erroneous. It pointed out that the opponents of birth control had produced no definite programme of legislation which would eradicate the evils of the present system. Finally it declared that dangerous, unintelligent birth control does actually exist and that it prefers intelligent birth control to ignorant, unenlightened birth control. In expressing this preference, it believes that it is voicing the opinion of a majority of the medical profession. The results of a questionnaire on birth control, sent to a number of physicians by Dr. William J. Robinson and Mary Ware Dennett, were published in the *Medical Review of Reviews* for March. The answers revealed the significant fact that 25 per cent of those who answered the questionnaire did not believe themselves sufficiently qualified to express an opinion on the subject. During November hearings were held on birth control before the American Social Hygiene Association, the Social Morality Association of the Y. W. C. A. (through the International Conference of Woman Physicians), and the Social Hygiene Committee of the League of Women Voters.

STATUTES. According to present laws, birth control clinics are legally possible in thirty-two (32) of sixty-five (65) larger cities in the United States. In thirty-three (33) they are not legally possible. In eighteen (18) states there is no law prohibiting the giving of contraceptive information verbally. A Federal law makes such information unavailable. Birth control literature does not come under the Federal law penalizing the mailing of obscene literature. During the year the Pennsylvania Legislature passed a bill (House Bill 376) prohibiting the dissemination of information which tended to restrict birth control. This bill, however, was vetoed by the governor. A judge in the New York State Court of Appeals recently gave an opinion to the effect that a doctor may give a patient contraceptive information *in order to prevent disease*. For Criminal Statutes on Birth Control, see *The Birth Control Review*, October, 1918.

ENGLAND. The Bishop of Birmingham, England, who is president of the National Council of Public Morals and chairman of the English National Birth Rate Commission, has come out with a statement in favor of birth control. He

declares that "morally as well as eugenically it is right for people in certain circumstances to use harmless means to control the birth rate."

BIRTH RATE. See VITAL STATISTICS.

BISSELL, HERBERT PORTER. Jurist, died at Lockport, N. Y., April 30. He was born at New London, N. Y., Aug. 30, 1856; educated in Germany and at Harvard University, where he graduated in 1880; admitted to the New York bar in 1883 and practiced in Buffalo. He was Justice of the Supreme Court of the State after 1912. He was a member of many important State organizations and was at one time Judge Advocate in the New York National Guard.

BISSELL, WILLIAM GROSVENOR. Sanitary expert and bacteriologist, died at Buffalo, N. Y., November 14. He had been for many years well known as a sanitary expert in New York State. He was born at Lockport, N. Y., Jan. 30, 1870, and graduated at the medical department of the University of Buffalo in 1892. He practiced in that city and became a chief of bureau and bacteriologist in the Department of Health, in 1894. He successively held important positions in the State administration of health, and he served as surgeon in the National Guard for 20 years, retiring in 1913.

BLAKE, CLARENCE JOHN. Otologist, died at Boston, Mass., January 29. He was born at Boston, Feb. 23, 1843; studied at the Lawrence Scientific School and the Harvard Medical School where he was professor of otology from 1888 to 1913. He was on the staff of several hospitals and member of leading medical bodies and the author of *Operative Otology*.

BLAKELOCK, RALPH ALBERT. Painter, died in the Adirondacks, New York, August 9. He was born in New York City Oct. 15, 1847, and graduated at the College of the City of New York, 1867. Devoting himself to painting for the most part without teachers, he soon distinguished himself for work of rare character especially in his studies of Indians in the west. Among his chief pictures are the following: "Indian Girl," "Uinta Tribe," "Shooting the Arrow" (1880); "Bannock Wigwam in Peaceful Vale" (1893); "Autumn," (Mrs. Kurtz, New York); a beautiful moonlight scene, in the Lambert collection, Paterson, N. J.; "Sunset," "Nevarra Range," (W. T. Evans, New York); "The Pipe Dance," (Metropolitan Museum of New York) one of his finest productions. More than 20 years before his death he was pronounced insane and he was kept under restraint until within a few years of his death when he seemed to have completely recovered and returned to renew his friendships and associations.

BLANCHARD, RAPHAEL. French scientist, an authority in bacteriology, died in Paris toward the latter part of March. He was born in 1857. He was a well known zoölogist, and several times represented France in international congresses. He was born at Saint-Christophe, France, Feb. 28, 1857, a descendant of the celebrated French aeronaut Blanchard; became professor in the faculty of medicine at Paris in 1883, and in 1897 succeeded to the chair of natural history which at his request was changed to the chair of parasitology, in which subject he had made himself an authority. He founded the Institute of colonial medicine at Paris, and organized the French congress of zoölogy, and the French association for destroying insect

pests. He was also for 20 years general secretary of the zoological society of France.

BLISS, EDWIN MUNSELL. Author and editor, died at Washington, D. C., August 7. He was born at Erzeroum, Turkey; educated at Robert College, Constantinople, 1862, and afterwards at Amherst and Yale. He was editor of the *Encyclopædia of Missions* (1889-91) and of its second edition in 1910 and he was on the staff of the *Independent* for 10 years following 1891 as well as staff contributor for other periodicals. He published *The Turk in Armenia, Crete and Greece* (1896) and *Missionary Enterprises* (1908). In 1913 he compiled a summary of State laws relating to dependent classes and was engaged in other work in the Bureau of the Census.

BLISS, GEN. TASKER H. American representative at the Paris Peace Conference. He was assistant chief, then chief of the American general staff at Washington. After the Spanish War he was prominent in the reconstruction of Cuba under the military government. He also served as military adviser on Mexican affairs. Before the Conference he was a prominent figure in the Supreme War Council.

BLOSSOM, H. MARTYN, JR. Playwright, died in New York City, March 23. He was born at St. Louis, Mo., May 10, 1866, and engaged in the insurance business, but later removed to New York City and wrote stories and plays. The latter include *Yankee Council*; *The Red Mill*; *The Only Girl*; *The Man from Crooks* and other plays, among which the best known was perhaps *Mlle. Modiste* in which Fritz Scheff played the principal rôle.

BODANZKY, ARTUR. See MUSIC, *Orchestras*.

BOHEMIA. Formerly a crownland and titular kingdom of Austria, but after the downfall of the dual monarchy in the closing months of 1918 a member of the new Czecho-Slovak state (see CZECHO-SLOVAKIA); in the northwestern part of the former empire, bounded on the north by Saxony and Silesia, on the east by Moravia and on the south by Moravia and Lower and Upper Austria. Area, 20,057 square miles; population, 1910, 6,769,548; 1913, estimated, 6,860,029. The ethnical elements according to the census of 1910 were as follows: German-speaking, 2,467,724 (36.76 per cent); Bohemian, Moravian, Slovak, 4,241,918 (63.19 per cent); Polish, 1541; Ruthenian, 1062. Catholics numbered 6,447,536 (95.60 per cent); Evangelicals, 176,941 (2.61 per cent); Jews, 85,826 (1.27 per cent). Prague, the capital and largest city, had an estimated population June 30, 1914, of 541,500 including suburbs. Down to the changes at the close of 1918 the country was governed locally by a single chamber of 242 members and was represented in the lower house of the Reichsrath by 130 members. See AUSTRIA-HUNGARY.

BOILERS. MARINE BOILERS. The United States Steamboat Inspection Service, in its annual report, recommended the creation of a corps of experts in the Office of the Supervising Inspector General for the approval of the construction of both hulls and boilers. It was believed that if the plans of new vessels were examined and approved at such an office and blue prints and specifications sent to local inspectors at places where the boilers were to be built and where the vessels in which the boilers were to

be installed would be inspected, that the local officials would not be required to pass on the design of the boilers, but merely to see that they were built in accordance with the blue prints and specifications already approved in the Central Office. During the year the bureau, in view of the fact that the rules of the Board of Supervising Inspectors were criticized for not being up-to-date with reference to boiler pressures; that proper credit was not given to the riveting plan above double riveting, such as triple and quadruple riveted joints, and that objection was made to the practice of the Service with reference to hydrostatic pressure, drafted a bill looking to the amendment of sections 4433 and 4418, U. S. Revised Statutes, which had been introduced into the Senate as Senate Bill 574. Section 4433 Revised Statutes as it exists, reads as follows:

"The working steam-pressure allowable on boilers constructed of plates inspected as required by this Title, when single-riveted, shall not produce a strain to exceed one-sixth of the tensile strength of the iron or steel plates of which such boilers are constructed; but where the longitudinal laps of the cylindrical parts of such boilers are double-riveted, and the rivet-holes for such boilers have been fairly drilled instead of punched, an addition of 20 per centum to the working-pressure provided for single riveting may be allowed: Provided, That all other parts of such boilers shall correspond in strength to the additional allowances so made; and no split-calking shall in any case be permitted."

The recommendation of the Bureau was that this section be amended to read as follows:

"The working steam pressure allowable on all boilers inspected as required by Title LII shall be determined by the rules of the Board of Supervising Inspectors with the approval of the Secretary of Commerce."

The Bureau stated that the purposes of the proposed amendment in this section were, first, to do away with the obsolete rule contained in the present law, which prescribes a working steam pressure for single-riveted joints, without taking into consideration the percentage of strength of the riveted joint, and allows 20 per cent additional pressure for double-riveted joints, but which does not allow a greater working pressure for triple-riveted and quadruple-riveted, etc., lap and butt joints, for which greater working pressure should be allowed on account of the greater strength of the triple-riveted and other joints of greater strength than the double-riveted joints. This greater allowable working pressure for the stronger forms of riveted joints has for years been desired by boiler users.

The Bureau also recommended an amendment in the law that the rule for the hydrostatic pressure applied to boilers should be determined by the Board of Supervising Inspectors, with the approval of the Secretary of Commerce.

BOISDEFFRE, RAUL FRANÇOIS CHARLES LE MOUTON DE. French soldier and diplomat, died August 24. He was born at Alençon in France in 1839 and studied at the military school at Saint-Cyr, and the Staff College, and during the Franco-German war was a major of cavalry, and aid to General Chanzy. About 1890 he had become chief of staff and his name appeared prominently in the newspapers during the Dreyfus affair in 1898. At the trial of Zola he declared that there was a third secret document

showing the guilt of Dreyfus. After the confession of Lieutenant-Colonel Henry to the effect that this document was a forgery, General Boisdeffre resigned. His reputation rests mainly, however, on his activity as an agent for the alliance between France and Russia. He was much liked and respected at the Russian court, and had been received with special honors, when in 1879 he was serving as military attaché at Saint Petersburg. He was therefore chosen for the mission sent to Russia for the purpose of making certain military engagements, and the understandings then entered into formed the basis of the Franco-Russian entente. This was in 1892 and these military conventions were for a long time the only documents on which the alliance rested. They related exclusively to a defensive alliance. Many stories were told at the time of his death about his Russian experience and his conversations with the czar and the German Emperor, taken mainly from the volume of reminiscences by M. Arthur Meyer, the editor of the *Gaulois*.

BOKHARA. A state of central Asia, formerly under the government of the Russian empire, lying between the Russian provinces of Syr-daria and Samarkand on the north and Afghanistan on the south. Area estimated at 83,000 square miles, and population at 1,250,000. The chief town is Bokhara with about 75,000 inhabitants. Other cities with estimated populations are: Karshi, 25,000; Khuzar, Hissar, and Shahr-i-zabz, 10,000 each. The Trans-Caspian railway crosses the country from the Oxus to a point within a short distance of the capital and thence to Tashkent. The chief products are fruit, silk, grain, tobacco, cotton, hemp, live-stock, and mules. The chief minerals found are gold, salt, alum, etc. There is a considerable trade with India in exports of raw silk and imports of green tea, indigo, drugs and wearing apparel. The Ameer in 1919 was Sayid-Mir-Alim Khan, who succeeded Jan. 6, 1911.

BOLIVIA. A South American republic situated in the interior of the continent to the west of Brazil and east of Chile. Historically considered Sucre is the capital and is the seat of the supreme court, but La Paz, the largest city, is the actual seat of government, containing the executive and legislative departments and being the place of residence of the foreign representatives.

AREA AND POPULATION. Area estimated at 532,437 square miles, and, including disputed territory, at 562,047. Another estimate places it at 514,155 exclusive of the territory claimed from Paraguay. Population, estimated in 1915, 2,889,970, but a lower one which seems more probable placed it at 2,268,000. For further details of population, see preceding YEAR BOOK. La Paz had a population in 1915 of 100,097; Cochabamba, 31,000; Sucre, 30,000; Potosi, 30,000; Oruro, 23,000.

EDUCATION. No later figures for education were available than those given in the preceding YEAR BOOK. Primary education is free and compulsory and the number of elementary schools in 1915 was 426, with 3960 teachers and 51,162 pupils. Secondary instruction was supplied by 21 colleges, 5 private lycées and 5 clerical institutions, with 180 teachers and 2598 pupils; higher education by 19 institutions with 78 professors and 1291 students. There are two universities, at Sucre and La Paz, and there is a

national conservatory at La Paz to which was added in 1917 a war college for officers. In 1916 the government spent 2,562,468 bolivianos for education.

PRODUCTION. Agriculture is in a backward condition though mainly sufficing for local needs. The land under cultivation has been estimated at 4,940,000 acres which will be increased as the result of measures for irrigation by artesian wells recently undertaken. The chief crops include wheat, corn, barley, beans, potatoes, and other vegetables, but the chief commercial crop is rubber of which the exports in 1915 were placed at 5081 metric tons. The main resources of Bolivia are mineral and include silver, tin, copper, lead, zinc, antimony, bismuth, gold, wolfram, and borate of lime. The following table gives the weights and values of mineral exports in 1917:

	<i>Kilograms</i>	<i>Bolivianos</i>
Tin ore	46,480,414	85,258,482
Copper	87,444,900	11,921,147
Wolfram	8,890,584	10,810,291
Lead ore	4,117,698	1,514,914
Antimony ore	28,881,892	17,017,907
Bismuth ore	534,717	4,116,677
Zinc	427,047	530,780

The following report after an expert investigation of petroleum resources was published in 1919: The petroleum regions of Bolivia may be divided into two classes—one, the eastern, which is very rich although it has not been thoroughly prospected, comprises the whole eastern zone of Bolivia from Yacuiba on the south to Santa Cruz, where the petroleum gushers (especially at Parapetí near the boundary of the Department of Santa Cruz) are more or less in a state of formation, evidenced by a pure and clearer substance with 98 per cent of inflammable matter. In that region it is also found that the mountain ranges of Aguaraquí, Sararenda, Charagua, and the mouth of the River Piray are especially rich in petroleum, from the place called Espejo to the southwest of Santa Cruz, where it appears in a liquid and clear state, without any bituminous odor, according to tests at the Bureau at La Paz where a sample of petroleum from Santa Cruz was found to be of superior quality. Just parallel to these mountain ranges is located Inca-Hausi, where petroleum is also to be found although in smaller quantities. In this same zone are the excellent petroleum deposits of the Province of Azero in the Department of Chuquisaca.

The western zone shows unmistakable evidences of the presence of petroleum from the regions of the Rio Grande de Mizque, to Apillapampa, Ayoma and Campinota, where it disappears under the rocks to reappear again and again from Amboré to the west of Santa Cruz, to Caupolicán, this zone comprising the districts of Charparém, Ayopapa, and Arque, of the Department of Cochabamba, and those of Caupolicán and Nor Yungas of the Department of La Paz. Further to the west are to be found lubricating oils and also evidence of the presence of petroleum in the districts of the Province of Pacajes, on the border of Calacoto.

COMMERCE. The imports for 1917 were 33,480,825 bolivianos, and the exports, 157,748,050 bolivianos. In 1916 Great Britain held the chief place in the total foreign trade, and the United States the second, although the United States

was first in respect to the imports. The Bolivian imports and exports for the five-year period of 1914-18, inclusive, were as follows: 1914, bolivianos 105,562,368 (1 boliviano = approximately \$0.39); 1915, bolivianos 117,784,917; 1916, bolivianos 132,583,015; 1917, bolivianos 191,228,885; and 1918, bolivianos 217,612,737. The general total of national products exported in 1918 amounted to 120,710 metric tons, worth 182,612,850 bolivianos and taxed by the customs for 8,241,615 bolivianos, as against 151,797 metric tons, worth 157,748,054 bolivianos, and taxed by the customs for 5,866,966 bolivianos, in 1917.

RAILWAYS. The following statistics of railways were supplied by the *Pan-American Union* in 1919: The length of Bolivian railways in operation in 1918 was 1689 kilometers, while those under construction had a length of 571 kilometers, as is shown in detail as follows: Lines in operation: The Antofagasta and Bolivian Railway Co., Antofagasta to Oruro, 486 kilometers; Viacha to La Paz, 29 kilometers; and the Kenko Branch, 8 kilometers, or a total of 523 kilometers. The Huanchaca Bolivia Co., branch of the principal line, Antofagasta, Uyuni, Huanchaca, 38 kilometers. The Bolivian Railway Co., Viacha-Oruro, 202 kilometers; Rio Mulato-Potosi, 174 kilometers; Oruro-Cochabamba, 205 kilometers, and Uyuni-Tupiza to Atocha, 90 kilometers, or a total of 671 kilometers. Electric Light and Power company, Quillacollo-Cochabamba, 18 kilometers, and Cochabamba-Arani, 60 kilometers, or a total of 78 kilometers. Arica to La Paz Railway, Arica Alto de la Paz, Bolivian section, 233 kilometers. The Peruvian Corporation, Guacui-La Paz, 98 kilometers. Simón I. Patiño, Machacamarca to kilometer 40.4, Corocoro branch (property of the state); branch of the main line from Arica, 8 kilometers. The lines under construction were: Simón I. Patiño: Machacamarca-Uncia, 64 kilometers; State railways, La Quiaca-Tupiza, 100 kilometers; Potosi-Sucre, 178 kilometers; La Paz-Yungas, 125 kilometers; Uyuni-Tupiza (nearly completed), 104 kilometers, or a total of 507 kilometers.

During the year arrangements were concluded between Bolivia and Argentina which it was expected would expedite work on the proposed railroad from Formosa, Argentina, to Cochabamba, Bolivia. The line as planned in 1919 was to have 500 kilometers (311 miles) in Argentina and 850 kilometers (528 miles) in Bolivia. English engineers had been engaged on the survey, and construction was to begin as soon as the railroad material market should have returned to normal conditions.

This line when finished will open up the rich forest lands of the Bolivian and Argentine Chaco, and would also place the Bolivian montaña in easy communication with Buenos Aires via the extension from Formosa to Embarcacion, and will be of great advantage to Santa Cruz, an important city of eastern Bolivia. In addition, this line would provide another transcontinental railroad, for at Cochabamba, a junction would be made with the Antofagasta Railroad.

During the year plans were prepared also for the construction of the last sections of the Potosi-Sucre Railway. The total length of the line was 170 kilometers (105.63 miles) of which 50 kilometers (31.1 miles) were practically ready for service in 1919.

FINANCE. The standard of value is gold and the monetary unit is the boliviano whose par value is 38.932 cents. Revenue for 1918 estimated at 32,586,875 bolivianos, and expenditure at 36,145,250; revenue for 1919 31,328,767 and expenditure, 28,471,853. The public debt reported June 30, 1918, amounted to 67,572,378 bolivianos of which 39,808,752 were external; 21,662,436 internal; and 6,101,183 floating.

ARMY. The law of Dec. 15, 1915, provides for the military system which requires a permanent force of 3577, service being compulsory between the ages of 19 and 50, and including six years in the first line, five in the ordinary reserve, 10 in the extraordinary reserve, and 10 in the territorial guard.

GOVERNMENT. The legislative power is vested in a Congress of two Houses, the Senate and the Chamber of Deputies, the former consisting of 16 Senators elected for six years, and the latter of 70 Deputies elected for four years, both by direct vote of the people. The executive power is vested in a president elected for four years by direct popular vote, and ineligible for reelection, and the ministry of six members for the following departments: Foreign relations; worship; finance; government; public works; justice and industry; war and colonization; and education and agriculture. Two vice-presidents are elected along with the President and for the same term. The President at the beginning of 1919 was Señor José Gutierrez Guerra, elected for the term 1917-21.

BOLSHEVIKI, BOLSHEVISM. See **WAR OF THE NATIONS**, and articles on countries under *History*.

BOOTS AND SHOES. This industry in the United States in 1919 reestablished itself on a peace basis and many of the plants that had been working on war contracts readjusted themselves to the former conditions. The increasing prices for leather and labor naturally were reflected in higher prices for shoes and while there was complaint from consumers the production was readily absorbed. It was argued that in this as in other lines the purchasing public represented by workers were in receipt of high wages and demanded the best grades of foot wear for which they were ready to pay high prices. As an example of the American boot and shoe industry in 1919 the case of Brockton, Mass., may be cited. Local figures of production gave the 1919 output as 759,353 cases as compared with 679,023 cases shipped from Brockton in 1918. Reduced to pairs this would be 18,983,800 pairs valued at \$142,378,500 in 1919 as against 16,975,575 pairs in 1918 valued at \$95,063,200 or an increase of some 2,000,000 pairs and a value of \$47,000,000. In 1919 there were 13,404 union workers in the city as compared with 11,902 in 1918. At the end of the year the U. S. War Department announced that it had declared surplus and proposed to offer for sale to the public through the retail stores of the Quartermaster's Department 1,900,000 pairs of shoes made on the Munson last. This was the first offer to sell new army inspected shoes and included the marching shoes offered at \$8.25 a pair; a heavy weight metallic fastened shoe for field use offered at \$7.50 per pair and a welt shoe offered at \$7.50. This announcement was made after the statement that the General Staff of the army had adopted a universal shoe for field, marching, and dress uses. This new shoe also was to be made

on the Munson last, but with certain modifications of the previous specifications.

BORDEN, SIR ROBERT LAIRD. Canadian representative at the Paris Peace Conference. He was Prime Minister of Canada and Secretary of State for External Affairs. He had been a barrister by profession and practiced in Halifax. Entering politics he was elected to the Canadian House of Commons in 1896 and led the opposition from 1901 to 1911, when he won in the general election against Sir Wilfred Laurier. He showed remarkable energy during the war and conducted affairs with moderation and tact, as was illustrated by his bringing about a coalition with the pro-conscription Liberals. He was a strong advocate of an imperial war cabinet. See preceding YEAR BOOKS.

BORLAND, WILLIAM PATTERSON. Congressman from Missouri, died in France, February 20. He was born at Leavenworth, Kan., Oct. 14, 1867. He studied law at the University of Michigan and practiced in Kansas City after 1892. He was a member of Congress from 1909 to 1919. From 1895 to 1909 he was dean of the Kansas City Law School.

BORNEO. See EXPLORATION.

BOSNIA AND THE HERZEGOVINA. Former provinces of the Ottoman Empire which passed over to Austria-Hungary in 1908 and which after the disruption of the empire in November, 1918, formed a part of the new southern Slav state of Jugo-Slavia (q.v.). Area, 19,768 square miles; population, according to the census of Dec. 31, 1910, 1,898,044.

BOSTON. See DOCKS AND HARBORS.

BOSTON MUSICAL ASSOCIATION. See MUSIC, *General News*.

BOSTON POLICE STRIKE. See STRIKES AND LOCKOUTS.

BOSTON SYMPHONY ORCHESTRA. See MUSIC, *Orchestras and Novelties*.

BOSTON UNIVERSITY. A non-sectarian institution of learning, founded in 1869 at Boston, Mass. In the fall of 1919 there was the following enrollment: college of liberal arts, 599; college of business administration, 2653; college of secretarial science, 602; department of religious education and social science, 211; school of theology, 220; school of law, 311; school of medicine, 94; school of education, 182; teachers' courses, 411; graduate school, 28. There were 383 students at the summer session of 1919. The faculty numbers 364. Productive funds amounted to \$3,212,448 and the income for the year was \$160,000. The library of the university contains 62,282 volumes. The university has substituted for the S. A. T. C. a unit of the R. O. T. C. President, Lemuel Herbert Murlin, D.D., LL.D.

BOTANY. The American Association for the Advancement of Science held its 72nd annual meeting at St. Louis, Mo., Dec. 29, 1919, to Jan. 3, 1920, with the Botanical Society of America, the American Phytopathological Society and other affiliated societies meeting at the same time. The British Association, which had held no meeting since 1916, met at Bournemouth September 9th to 13th. The Spanish Association for the Advancement of Science met at Bilbao September 7th to 12th. At all these meetings botanical subjects occupied prominent places in the programmes. The fifth Annual Conference of Cereal Pathologists held an important meeting at St. Louis, Mo., June 5 to 7,

1918. A field meeting of Plant Pathologists was held on Long Island, N. Y., June 24th to 27th, to study the leaf roll and mosaic diseases of potatoes. In addition to many pathologists from this country and Canada several were in attendance from European countries.

A conference of western Plant Pathologists was held in Portland, Ore., April 23rd and 24th to consider means for the prevention of the spread of the white pine blister rust into the western mountain and coast regions. A Canadian Branch of the American Phytopathological Society was established during the year. *Genetica*, a journal devoted to plant and animal breeding, was established under the editorship of Dr. J. P. Lotzy. An Institute for Phytopathological Research has been created in connection with the famous Rothamsted Experiment Station at Harpenden, England.

As an outgrowth of the War Emergency Board, established in 1917 by the American Phytopathological Society, there has been formed a permanent Advisory Board consisting of six members, who represent various regions of the United States and Canada, to advise with the National Research Council, encourage coöperation among investigators, arrange for conferences, promote international relations in phytopathology, etc. The Plant Disease Survey, inaugurated by the United States Department of Agriculture, has continued to collect data regarding the crop losses due to plant diseases and the aggregate for the year 1918 was very large. Much of the loss could have been prevented by the wide adoption of well known control measures.

Three additional plant quarantines were promulgated by the Secretary of Agriculture during the year on account of plant diseases. Under quarantine No. 37, which became effective June 1, 1919, the importation of nursery plants, seeds, etc., is prohibited except under regulations of the Federal Horticultural Board. Quarantine No. 38 prevents the interstate shipment of the common barberry and related plants on account of their being alternate hosts of the stem rust of wheat; and No. 39 prohibits the importation of wheat, rice, and related cereals from certain countries on account of the presence of the flag smut (*Urocystis tritici*) and take-all (*Ophiobolus graminis*).

Among botanists whose deaths were reported within the year were: Dr. W. G. Farlow, for many years Professor of Cryptogamic Botany at Harvard University; R. Farneti, plant pathologist of the University of Pavia; C. de Candolle, Swiss botanist and editor of *Prodrum*; Dr. G. Klebs, professor of botany of the University of Heidelberg; C. G. Bancroft, government botanist of British Guiana; H. Léviellé, founder of the Académie Internationale de Géographie Botanique; Dr. P. Baccarini, director of the Botanic Gardens at Firenze; Dr. S. Schwendener, honorary president of the Deutsche Botanische Gesellschaft; Dr. G. S. West, botanist of the University of Birmingham, England, and Professor J. W. H. Trail, botanist of the University of Aberdeen, Scotland.

The amount of botanical literature that came to hand during the past year was unusually large. This, in part, is due to the arrival of issues withheld during the war, and to the fact that many workers were forced to suspend investigations which gave time for the preparation and publication of long deferred papers.

ECOLOGY. Cowles, in an interesting paper presented to the Association of American Geographers gave data regarding the past and present climate of our leading crop plants. Most of them are said to have originated within tropical or subtropical regions and many are now grown almost exclusively outside the tropics. It is believed that mutation or acclimatization, rather than change in climate, is responsible for the change in habitat of most crop plants. As having a bearing not only on ecology, but also on agriculture, Hartwell and associates have shown the injurious effects that some crops have on those which immediately follow them. The effect is considered not to be due to the exhaustion of plant nutrients, but rather to the influence exerted on soil acidity. Sampson has described a method of estimating range depletion and renewal based on a study of plant successions in national forests.

Harvey claims that subjecting plants for a few days to temperatures a little above freezing hardens them so that they will withstand freezing temperatures for a short time. The hardening process is said to cause changes in the protoplasm, such as increase of hydrogen-ion concentration and increased salt content, which prevents the precipitation of the protoplasm. The effects of desiccation, freezing and plasmolysis, are considered to be quite similar in their manifestation. Arrhenius and Soderburg report that plants on high mountains have high osmotic pressures, corresponding to the concentration of the cell sap and that this, within limits, protects the plants from injury by frost. The value of standard plants as indicators of soil and climatic possibilities is becoming recognized. Clements, Weaver, and others have adopted for this purpose such plants as wheat, oats, sun-flower, and raspberry. These grow under widely varied conditions and they have been found especially valuable for comparative studies on transpiration and growth. The determination of their photosynthetic efficiency may lead to their use in field and forestry studies where light and shade are important factors.

Griggs has given an account of the vegetation of Kodiak Island, following the eruption of Mount Katmai in 1912, when herbaceous vegetation was suppressed by the fall of ash. The ash has little fertilizing value, but where it has become mixed with the old soil the physical condition of the soil was improved and the vegetation greatly stimulated. Gail found light the controlling factor in the vertical distribution of *Fucus* in Puget Sound, well grown plants undergoing decomposition and death when placed a meter below the surface of the water. The United States Weather Bureau has prepared charts showing the rest periods of many of the common plants of the United States, based on the average time between fall and spring when the mean temperature is below 49° F.

PLANT BREEDING. A large number of contributions to the genetics of important crop plants were published during the year only a very few of which can be noted. Knowlton has described a fossil species of maize from Peru which is believed to offer additional evidence as to the antiquity of maize. Collins, referring to this fossil, says it presents no new characters, but rather a different combination of characters found among existing types. Roberts has called attention to a paper by McCluer published in

1892 in which are described the results of corn breeding experiments, the vigor of first generation hybrids, inheritance of endosperm color, etc., being commented upon.

Harland has reported on work with Sea Island cotton in which the inheritance of resistance to blister rust in one series and great productivity in another are claimed. Weatherwax, from a study of maize and some of its related forms, claims the theory of the hybrid origin of maize is not in accord with the morphological facts. He thinks that *Zea*, *Euchlena* and *Tripsacum* have descended independently from an ancestral type that is now extinct. Shaw and Norton have published the results of eight years' study on the inheritance of color in garden beans. In general, crosses of white and pigmented beans show a ratio of 3:1 but there are many wide departures from this proportion.

East, from a study of intercrosses of self-sterile plants of *Nicotiana*, found the behavior in intercrosses is governed by factors which act through the pollen; also that the gametes of plants having like constitutions as regards effective factors may be incompatible in that they do not make normal pollen tube growth and hence do not reach the ovary in time for fusion to occur. The growth of the pollen tubes is not inhibited by substances secreted by the pistil, but when compatible crosses are made substances are secreted which accelerate the pollen tube growth, enabling it to reach the ovary and fertilize the ovules before wilting takes place.

Macfarlane, from a study of phenological data relating to blooming, shedding of pollen, defoliation and climatic resistance, found hybrids show a blending of these characters intermediate to those of the parent plants. De Vries has added to his contributions on mutation by describing *Enothera rubrinervis* which he characterizes as a half mutant. Blakeslee described a mutant of the jimson weed (*Datura stramonium*) some of the variations from which are inherited in a method not in accord with the Mendel theory. Collins has given an account of a half white and a half purple mutant in a maize hybrid. The F₂ progeny of this grain gave approximately a di-hybrid ratio in respect to the aleurone color character. Reports have been given by Shamel, Scott, and Pomeroy of their work in citrus improvement through bud selection. Numerous distinct strains of navel and Valencia oranges and Marsh grape fruit are said to have been isolated by bud selection. La Rue and Bartlett claim that in mutations involving size in the entire plant, the number and arrangement of the cells are changed and not the size of the individual cell.

PHYSIOLOGY, ETC. Osterhout and Haas conclude from a study of *Ulva* that photosynthesis begins as soon as the plant is exposed to light, and that the rate increases until a constant rate is attained. It is assumed that sunlight decomposes a substance in the plant the products of which either catalyze photosynthesis or enter directly into the reaction. Klebs claims that light is the dominating factor in determining photosynthetic activity and that the inhibiting effect of high temperatures can be annulled by increased light intensities.

Spoehr and Long consider photosynthesis to be closely related to sugar content and the respiratory activity of the leaf. It was found that leaves with greatly depleted carbohydrate sup-

plies show a very low rate of carbon dioxid fixation when first exposed to light. The rate, however, rises with increased carbohydrate content until a maximum is reached. Ewart claims that in the assimilation of carbon dioxid, chlorophyll acts as a light energizing enzyme and takes a direct part in the cycle of chemical changes which probably have carotin, xanthophyll, phytol and glaucophyllins as immediate products and glucose, levulose, formaldehyde and oxygen as end products. Sugar may be found directly or through the polymerization of the formaldehyde.

Osterhout and his associates have shown that anesthetics, when applied in sufficient amount to cause any effect on plants, first cause a rise in respiration followed by a decline. This is held to be opposed to the theory of Verworm that anesthesia is a kind of asphyxia due to the checking of respiration. Langdon reports that carbon monoxid is a regular respiration product of the kelp, *Nereocystis leutkeana*. It is present in the pneumatocysts and is found only when oxygen is present. Meyer, in accounting for the progressive change in the color of the leaves of the garden nasturtium from the dark green of the young leaves to the yellow when old, claims it is due to the gradual decomposition of the chlorophyll while the carotin and xanthophyll remain constant. With the loss of chlorophyll there is a similar decomposition of the proteins of the chloroplast.

Osterhout has found striking agreement as regards the important aspects of permeability, antagonism, injury and recovery, and death. He has found additional evidence to support the hypothesis that the antagonistic relations of salts, alkaloids, etc., can be predicted from studies of permeability. Based upon a study of the resistance of root tips of *Vicia faba* to electric currents, Small claims that geotropic response depends on changes in permeability. Preliminary experiments by Lamkey seem to indicate that permeability and plant food availability are dependent to some extent on temperature, shade, sunlight, and soil moisture content.

Loeb has added to his contributions on inhibitory substances in plants and claims that in regeneration, apical leaves accelerate root formation in the basal portions of stems in proportion to the mass of the leaf. Reed and Halma have found growth inhibiting substances in twigs of the Chinese lemon, growing shoots near the apex inhibiting the development of buds lower on the stem. Horizontally placed stems develop the buds on the upper side only. Appleman has summarized his results and shows that growth inhibiting substances play an important part in the production of sprouts on the potato tuber. Free, Lloyd, and others have continued studies on the colloidal phenomena of protoplasm in relation to permeability and growth. MacDougal has given a conception of growth in organisms. Living matter is composed mainly of pentosans and albumins, or albumin derivatives, with lipins as a minor component and growth of living matter consists of hydration, with accompanying swelling, and the accretion of solid matter.

MISCELLANEOUS. Chamberlain has summarized the available data regarding chondriosomes, and claims they are definite entities within the cell that multiply by division, some giving rise to plastids. Their rôle in heredity remains to

be demonstrated. Magnus, from a study of wound callus and bacterial tumors in plants, found evidence that indicates the tumor inducing organism in plants is not identical with that in animals but he believes that studies on tumor formation in plants will ultimately throw light on cancer development in animals.

Based on a study of the flagellæ on the nodule producing bacteria, Hansen claims they fall into two distinct groups. Experiments conducted at the Minnesota Experiment Station on the resistance of wheat to the stem rust, *Puccinia graminis*, seem to indicate that the hydrogen-ion concentration of the cell sap does not play an important rôle in resistance to this fungus. Panatelli claims that resistance to freezing in plants is not due to the concentration of the cell sap or to the salt content, but is due to the proportion of sugar the cells are able to conserve during the cooling process.

Bates has described a new evaporimeter which is claimed to give the nearest approach yet attained to the duplication of the physical response of the plant leaf to the factors which are involved in evaporation studies. Bosc has devised a form of apparatus by which small movements are greatly enlarged making it possible to record the growth of plants and their responses to stimuli during very brief intervals of time. Shreve has perfected an apparatus for measuring the surface temperature of leaves and is able to measure fluctuations of 1 to 3° C. in 20 to 30 seconds of time.

PLANT DISEASES. Plant diseases took a heavy toll in the crops of the United States according to a recent report of the Plant Disease Survey, United States Department of Agriculture. The estimated reduction, due to plant diseases in 1918 for a number of crops, was: Wheat, 33,171,000 bushels; oats, 64,396,000; corn, 158,533,000; potatoes, 78,094,000; sweet potatoes, 47,136,000; tomatoes, 801,763,000; apples, 19,273,000; and peaches, 1,490,000 bushels. The cotton crop suffered losses amounting to 2,160,000 bales from the same causes.

Congress, in making appropriations for the Department of Agriculture for the year ending June 30, 1920, provided practically \$1,250,000 for the investigation of plant diseases, experiments for their control, for the application of control and eradication measures and for quarantines against the introduction of diseases from without the country or the spread of some already present.

One of the most important events was the discovery of the diseases of wheat and other cereals known as take-all and flag smut. These diseases were found in a few counties of Illinois, and take-all in two or three localities in Indiana. Nothing is known regarding their introduction into the country. Both diseases cause serious losses in Australia and other countries, and prompt measures were taken for their eradication. The black wart of potatoes, due to *Chrysophyctis endobiotica*, first reported in this country in the anthracite coal region of Pennsylvania in 1918, was found in 1919 in a few localities in the bituminous coal regions of southwestern Pennsylvania and West Virginia.

The white pine blister rust caused by *Peridermium strobi* continues to give concern to forest pathologists and others. It is known to occur from New England to Minnesota and efforts are being made to control it by the destruc-

tion of currant and gooseberry bushes which serve as the alternate hosts of the fungus. The campaign for the eradication of citrus canker in Florida by burning affected trees seems to be successful and the same methods are being adopted in South Africa where the disease has appeared.

The mottling disease of sugar cane, which was reported as a menace to the sugar industry in Porto Rico in 1918, has also been found in some of the principal cane growing regions of the United States. The importance of some rots of roots, stalks, and ears of corn are becoming recognized and Hofer has found that some forms are due to *Giberella* spp. organisms which also cause scab of wheat.

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BOTHA, LOUIS. Boer General and statesman, died in Pretoria, S. A., August 28. He had distinguished himself throughout the war and after its close by his staunch support of the Allied cause, and his loyalty to the British Empire. He was born in Greytown, Natal, in 1862, and won renown in the Boer War, 1899-1902, where along with De Wet he became one of the greatest figures of the war. He was field cornet under General Meyer and rose rapidly to a high rank. He commanded at the siege of Ladysmith, defeated the enemy at Colenso, and in 1900 attained the command in chief. He succeeded with his inferior forces in dragging out the war for many months after the fall of the South African republics, and although the capital, Pretoria, was captured, he did not surrender until 1902. He then carried on with the British government the peace negotiations, and believing the cause of independence hopeless, accepted the policy of conciliation, and became the chief of the Unionist party of South Africa. He was the first Prime Minister of the Union of South Africa and during all the latter years of his life exerted a powerful influence in politics—always on the side of stability. In spite of the break in his own party, in 1913, he continued to hold the leadership. Under his command-in-chief the South African forces took a remarkable and important part in the War of the Nations. Within a few months success was made sure, and in

July, 1915, all the German forces in Southwest Africa surrendered. In 1919 he visited Paris as the first delegate from the Union of South Africa, but had returned home in order to direct the political campaign for the elections. As the leader of the Union he was constantly involved in contests with General Herzog, the champion of complete South African independence.

BOTULINISM. See FOOD POISONING.

BOURGEOIS, LÉON. French representative at the Paris Peace Conference. He was born in Paris, 1851, and was a lawyer by profession and a Radical in politics. Having a logical and impartial mind he was frequently called upon in inter-party and international affairs where arbitration or compromise was required. In 1888 during the Boulangerist affair he entered politics and defeated Boulanger in the election by an overwhelming majority. His advice was frequently asked in times of cabinet crises and on one occasion after the attempt on the life of President Loubet he succeeded in forming a cabinet after all others had failed. He was devoted to the interests of international peace and prominent in connection with the measures of peace and arbitration which centred at The Hague. His experience along this line caused him to be selected by the government as the head of the foreign office committee to deal with the League of Nations.

BOURNE, FREDERICK GILBERT. Capitalist, died at Oakdale, Long Island, March 9. He was a prominent organizer of the sewing machine industry and the director of the Singer Manufacturing Company besides holding directorates in other important business enterprises.

BOWDOIN COLLEGE. Founded in 1794 at Brunswick, Me. The enrollment for the fall of 1919 was 448, and there were 29 members in the faculty. The productive funds of the college amount to \$2,631,012 and the income for the year was \$137,137. The library contains 120,000 volumes. President, Kenneth C. M. Sills.

BOWLING. The nineteenth annual tournament of the American Bowling Congress was held at Toledo, Ohio, ending April 1st. H. Cavan, Pittsburgh, won the individual championship with a score of 718. A. Pollard, Indianapolis, was second, with 714. The other winners were: Doubles, Kalush and Barnes, Rochester, with 1305; five-man team, Atherton Hotel, Oshkosh, Wis., with 2992. In the women's championships, contested on the same alleys, the individual honors went to Mrs. B. Husk, Newark, N. J., with 594. Other winners were: Doubles, Mrs. G. Butterworth and Mrs. F. Steib, Chicago, with 1042; five-woman team, Minor Butlers, Toledo, Ohio, with 2436.

E. Baumgarten, Chicago, captured the individual title at the International Bowling Association tournament, held at St. Paul in February, with a total of 631. Other results were: Doubles, W. Metcalfe and E. Matak, St. Paul, 1204; five-man team, Schmidts, St. Paul, 2815.

BOXING. The principal happening in the boxing realm in 1919 was the knocking out of Jess Willard, heavyweight champion of the world, by Jack Dempsey at Toledo, Ohio, on July 4th. The match was promoted by Tex Rickard and although the attendance, 19,650, was a big disappointment, the receipts amounted to \$410,732.16, exclusive of the war tax. Willard received \$100,000 for his share of the purse while Dempsey collected \$27,500. The war tax

amounted to \$41,789.94. The ring battle lasted only three rounds, Willard being unable to continue longer because of the severe punishment he had sustained from the very outset.

The victory achieved by Georges Carpentier, the French heavyweight, over Joe Beckett, British champion, was another sensational occurrence of the year. This bout was staged in London on December 4th. Beckett was sent down for the count in the very first round, although he entered the ring a pronounced favorite over the Frenchman. The victory of Carpentier was welcomed by followers of boxing throughout the whole world with the greatest enthusiasm, chiefly because of his long and creditable military service with the armies of the Allies.

Carpentier, through his manager, has challenged Dempsey to defend his world championship title, and the two will probably meet some time in 1920. This battle will probably take place in America and New York City will almost certainly be the place selected if the State Legislature restores professional boxing as is expected.

In other classes few changes took place during 1919. Jack Britton took the welterweight title from Ted Lewis, but the other champions clung to their laurels. Benny Leonard reigned supreme among the lightweights despite his many bouts, and it would appear that the only manner in which he can be deposed is by his becoming too heavy for his particular class.

The championships of the Amateur Athletic Union were held at Boston, Mass., April 7th and 8th. The results of the final bouts were: 108 pounds, D. Kamins, Clark House A. A., New York, defeated James Manning, South Boston, three rounds; 115 pounds, Ashton Donze, Y. M. G. C., New Orleans, La., defeated James Tomasulo, Elizabeth Y. M. C. A., three rounds; 125 pounds, William P. Corbett, Somerville, defeated Archie Walker, Rutgers Gymn. A. A., New York, three rounds; 135 pounds, Frank B. Cassidy, Ozanam Assn., New York, defeated John Hephurn, Fore River A. A., three rounds; 145 pounds, Dave Rosenberger, Glencoe A. C., New York, defeated Emile Franzer, National Turnverein, Newark, three rounds; 158 pounds, Sam Laronia, Bronxdale A. C., New York, defeated J. J. Flanagan, Brockton, three rounds; 175 pounds, Al Roche, Somerville, defeated Frank Grayber, Willow A. C., Pittsburgh, four rounds; heavyweight, Edward P. Egan, Denver A. C., defeated James Tully, West Side A. C., New York, three rounds. See ATHLETICS.

BOYS' CLUB WORK. See AGRICULTURAL EXTENSION WORK.

BOY SCOUTS OF AMERICA. A movement in this country similar to the Boy Scout movement in Great Britain headed by Sir Robert Baden-Powell. It is an organization to develop character, initiative, and resourcefulness in boys by cultivating their interest in activities of practical every-day value through their interest in the fascinating outdoor activities of the Scout programme, under carefully selected leadership. They number throughout the world several million. In the United States on Dec. 30, 1919, there were 373,174 scouts properly registered in 16,768 troops, with 102,020 men council members, troop committeemen and scoutmasters. The organization is growing at the rate of about 235 registrations a day.

The Boy Scouts are neither military nor anti-military in organization, the uniform, drill, etc.,

having no military object, but aiming only at bringing about harmony and *esprit du corps*. Each applicant for membership must take the following oath: "On my honor I will do my best—1. To do my duty to God and my country, and to obey the Scout Law; 2. To help other people at all times; 3. To keep myself physically strong, mentally awake, and morally straight." Character development manifests itself in health, efficiency, chivalry, loyalty, patriotism, and good citizenship, which is the key note of the movement. Scouts are organized in patrols, of eight boys each, four patrols to a troop. Each troop is under a scoutmaster and one or more assistants holding commissions from the National Council of the Boy Scouts of America. Troops are usually connected with churches, schools, or other established institutions, and must be chartered by the National Council. Scoutcraft includes instruction in first aid, life saving, tracking, signaling, cycling, nature study, seamanship, campcraft, woodcraft, chivalry, and all the handicrafts. Special merit badges are awarded for excellency in many things such as photography, gardening, chemistry, bird study, automobilism, firemanship, radio telegraphy, and forestry. Scouts are of the Tenderfoot, Second Class, and First Class rank, according to the stage of advancement. "Be Prepared" is the Scout motto, and service is the great ideal of the movement. Scouts are pledged "to do a good turn daily."

During the war, the Boy Scouts rendered valuable service to the government as the following figures will show: In the four Liberty Loans they sold 1,867,047 subscriptions, amounting to \$278,744,650; War Savings Stamps sold to April 10, 1919, \$42,751,031.25; 5200 carloads of standing walnut lumber were located; 100 carloads of fruit pits collected for gas masks; 12,000 war gardens and farms were conducted; 30,000,000 pieces of government literature were distributed; conducted confidential service for the Third Naval District; as well as having cooperated with nearly every public service organization, as for instance, the Red Cross, the American Library Association, the United War Work Committee, the Food and Fuel Conservation committees. Gen. John J. Pershing sent a letter of appreciation of the work of the Boy Scouts to Mr. Colin H. Livingstone, the president of the National Council.

The ninth annual meeting of the National Council was held in New York City on March 24, 1919. The report for 1918 was received and plans were discussed for the following year. Active work is being done in regard to the introducing of courses for scoutleaders in leading universities. So far 12 universities have introduced courses, such as Columbia University, University of Wisconsin, Yale University, Boston University.

A new feature of the Boy Scouts is an organization of Sea Scouts under Capt. James A. Wilder. Sixty-nine organizations had been started up to March, 1919, and many more were expected to enroll within the year.

Boys' Life is the official organ of the National Council, having a monthly circulation of over 100,000 copies. To December, 1918, a total of 1,165,400 copies of the *Handbook for Boys* had been sold.

The Boy Scouts of America was incorporated Feb. 8, 1910, and chartered by Act of Congress,

June 15, 1916. Its honorary president is President Woodrow Wilson; honorary vice-presidents are the Hon. Wm. H. Taft and Daniel Carter Beard. The active officers are: President, Colin H. Livingstone; treasurer, George D. Pratt; National Scout Commissioner, Daniel Carter Beard; Chief Scout Executive, James E. West. Headquarters are in New York City.

BRACKETT, WALTER M. American painter, died at Boston, Mass., March 4. He was born at Unity, Me., June 14, 1823; began painting portraits in 1843 but later devoted himself to the study of game fish. He was an exhibitor for 50 years in expositions in the United States and abroad. His work was well known and widely distributed.

BRAHAM, JOHN JOSEPH. American composer and orchestra leader, died at Brooklyn, N. Y., October 28. He was born in England, in 1848, came to America in 1859, and three years later made his appearance as a violinist at a New York theatre. He was subsequently musical director at several theatres in New York and elsewhere, and for a time was in charge of the Boston Museum Orchestra. He was director of the first performance of *Pinafore* in the United States, and he wrote the music for *Hiawatha* and other well-known productions.

BRAINARD, OWEN. Architect and civil engineer, died in New York April 2. He was born at Haddam, Conn., March 10, 1865, became chief engineer of Carrere and Hastings, 1893, and was admitted to partnership, 1901. Among his works are the New York Public Library, the Yale bi-centennial buildings and Century Theatre in New York and other well-known buildings.

BRARD, MADELEINE. See MUSIC, Artists, Instrumentalists.

BRATIANO, JEAN. Rumanian representative at the Paris Peace Conference. He was the Prime Minister of Rumania. He was the son of the well-known Rumanian statesman, who had secured the adoption of the constitution of the united principality, and invited Prince Charles to accept the throne in 1866. From the beginning of the war he was a strong supporter of the Allies, but maintained neutrality until the time came for taking sides. In his administration was concluded the treaty with the Allies which resulted in Rumania's entry into the war in 1916. His courage after the defeat by Bulgaria was highly praised. He had been a leader of the Liberal party.

BRAZIL, UNITED STATES OF. South American country, constituting a federal republic, the largest state on the continent. Capital and largest city, Rio de Janeiro.

AREA AND POPULATION. Area estimated by the Brazilian Ministry of Agriculture at 3,280,900 square miles, or an excess of more than 250,000 square miles over the area of continental United States, exclusive of Alaska. Another estimate places the area somewhat lower than this, namely, at 3,275,510 square miles. It comprises 20 states, the federal district, and one territory. Population according to the census of 1900, 17,371,089, and according to the estimates of 1917, 27,473,579, or an average density of 8.3 per square mile. The number of Indians in the Amazon area is estimated at 600,000. The chief cities with estimates of population in 1913 are as follows: Rio de Janeiro, 975,818; São Paulo, 450,000; Bahia, 348,130; Belem, 275,167; Pernambuco, 216,484. Immigration to Brazil

from 1820 to 1917 amounted to 3,428,651. In 1915 the immigrants numbered 30,287, of whom 15,118 were Portuguese, 6895 Spaniards, 5779 Italians. In 1918 the immigrants who entered the country through the ports of Rio de Janeiro, Paranagua, Santos, and Rio Grande numbered 20,501, of whom 12,531 were males and 7970 females; 8182 classified as agriculturists and 7694 as laborers. In the autumn the government notified all consular officers in Brazil that aid would be gratuitously supplied to agricultural immigrants who were accompanied by their families. This included food, medical treatment, medicines, freedom from duties for baggage, agricultural machinery or tools for their profession, transport by rail or by water, or information by means of interpreters if necessary. If the destination of the immigrant was the federal colonies, they would receive in addition employment to the extent of 15 days' work a month for each adult, and other advantages. The land allowed to each settler was 25 hectares, or about 62 acres. The immigrant service undertook to provide temporary quarters for settlers who wished to build dwellings in the colonies.

PRODUCTION AND INDUSTRY. The country is agricultural but as yet only a small portion of the soil has been brought under cultivation. Coffee is by far the chief product of commerce, the State of São Paulo alone producing about one-half of the world's crop and the four States of São Paulo, Rio de Janeiro, Espirito Santo and Minas Geraes producing about four-fifths, although their area is only about one-eighth of the total area of the country. The average annual yield is over 12,000,000 sacks of 132 pounds each. The yield in 1917 was estimated at 846,480 tons. Rubber comes next, supplying about one-half of the world's production. The chief rubber-growing regions are in the forests of the Amazon basin and around Ceara, Para, and Manaos. The rubber tree is extensively cultivated under government encouragement. The rubber crop in 1917 was placed at 41,500 tons. Another crop in which Brazil leads the world is cacao, raised chiefly in Bahia and Espirito Santo though in parts of other states as well. Tobacco is also raised in those same states and the annual production is placed at about 50,000,000 kilos. The sugar crop has averaged about 300,000 tons. Cotton is raised chiefly in the northeast, the crop for 1917-18 being about 90,400 tons. Other crops of importance with their estimates in 1917 are as follows: Wheat, 2,421,031 metric tons; rice, 371,989; beans, 326,686; mandioca flour, 299,558. Mate is also raised, chiefly in Parana. The live-stock on hand, 1917, were as follows: Cattle, 8,443,400; horses, 1,407,600; mules, 351,900; sheep, 4,604,000; goats, 138,900. In the same year Brazil occupied the second place in the world's production of hogs, having 17,327,210 head as compared with 67,766,000 head in the United States which held the first place. The following summary of the President's message September 19 on reclamation and of the provisions of the law proposed on the subject were supplied by the United States Bureau of Foreign and Domestic Commerce.

Since 1877 more than a million inhabitants of northeastern Brazil are known to have perished from famine and its consequences. This fact represents not only human suffering, but the loss of an incalculable economic force to a nation only sparsely populated. The success of

other governments in dealing with waste and desert lands—and particularly the success of the British government in Egypt and India and of the United States government in its western irrigation projects—proves that there is a feasible solution for Brazil's problem. But the work of conserving and utilizing the water supply by means of great dams and reservoirs must be undertaken by the central government. The expenditure will be large and should not be dissimulated, but emphasis should be placed on the fact that, in the experience of other governments, a great part of this outlay is recoverable in a few years by the increased taxes resulting from the greater value of the irrigated lands and the larger prosperity of the people. The fear that there is not sufficient water to make great reservoirs useful in the States of northeastern Brazil is unfounded. A prolonged study of the rainfall in the State of Ceara, the least favored State in this respect, shows an annual precipitation of more than 80,000,000,000 cubic meters, 16,000,000,000 cubic meters of which could be collected and would serve for the irrigation of about a million hectares (about 2,400,000 acres) of land.

The foregoing statements summarize the arguments which President Pessoa of Brazil presented to the Brazilian National Congress on Sept. 19, 1919, when he recommended legislation to enable the government to undertake the reclamation of the arid lands of the Northeast. The provisions which he believed should be included in such a law were as follows:

(1) Authorization of the government to engage in credit operations to the maximum amount of 40,000 contos (\$11,000,000) per annum until not to exceed 200,000 contos (\$55,000,000) has been expended; these sums to be used for the construction and upkeep of large reservoirs, irrigation canals, and supplementary works in northeastern Brazil.

(2) The establishment of a fund, in addition to the foregoing, which will include the following resources applied to the service of interest and amortization of loans, as well as to the expenses of construction and upkeep of the work: (a) Two per cent of the general income of the Republic during the time necessary for the construction of the works; (b) from 2 to 5 per cent of the ordinary revenues of the States during the same period, payable by arrangement with the Federal government in cash or in public lands; (c) the proceeds from the sale of land ceded by the State and of the land which may be disappropriated; (d) the revenue from the irrigation works; (e) contributions or gifts from whatever other sources.

(3) Provision for the disappropriation of lands necessary for the construction of works, of the flooded lands, and of the forests necessary for the protection of springs.

(4) Provision for the construction of works by the administration or by contract with companies which have successfully executed works of this kind.

(5) Provision for the operation and administration of works by the Federal government until time of total repayment of the quantity expended.

(6) Establishment of an irrigation tax and a conservation tax for the upkeep of the works and determination of the terms of lease of disappropriated lands.

(7) Provision whereby the irrigated lands shall be subject to confiscation if the proprietors fail to cultivate them in accordance with the regulations issued by the government or to pay taxes during a period of two years, such confiscation to be made on the basis of the assessed valuation of the land without improvements.

(8) Preference to be given in the sale and lease of lands in favor of families of the resident farmers in the respective States in which lands are to be irrigated.

(9) Authorization to the government to regulate the operation of the funds, the collection of taxes, and the administration and operation of the works.

COMMERCE. Before the war exportations were limited to a few staple products including coffee, rubber, manganese, tobacco, mate, cocoa, raw cotton, cotton seed, building and cabinet woods, table fruits and carnauba. During the war however a variety of new markets were opened and the country was able to export for the first time certain products such as rice, chilled meat, Indian corn and cassava meal. The exports and imports by countries for the years 1913, 1917, and 1918 were as follows:

EXPORTS			
Countries	1913	1917	1918
United States	\$102,436,802	\$180,987,909	\$98,474,000
United King.	41,650,381	35,817,299	28,700,500
Germany	44,838,640	.....	.....
France	38,687,801	39,272,267	25,604,000
Netherlands	23,223,993	1,496,946	.....
Austria-Hun.	15,187,242	.....	609,000
Argentina	14,880,127	25,653,954	43,188,250
Belgium	8,038,429	.....	1,440,000
Uruguay	5,160,203	13,140,747	29,626,000
Italy	4,062,353	22,950,693	30,249,500
Sweden	3,190,292	882,201	1,886,250
Spain	1,807,307	3,921,385	6,355,250
Turkey	2,004,588	.....	.....
Portugal	1,587,099	1,310,838	2,600,500
All other countries	7,478,476	9,179,463	16,041,750
Total	\$813,628,078	\$284,118,693	\$284,275,000

IMPORTS			
Countries of origin	1913	1917	1918
United States	\$51,226,362	\$98,722,602	\$88,982,750
United King.	79,782,389	37,713,580	50,469,500
Germany	56,973,330	227,872	.....
France	31,900,321	8,456,017	11,837,000
Argentina	24,263,720	27,326,441	46,974,750
Portugal	14,309,878	6,810,544	9,490,750
Belgium	16,658,903	102,192	.....
Italy	12,350,550	4,152,127	5,263,500
Uruguay	7,038,766	4,048,285	10,316,650
Austria-Hun.	4,921,688	404	.....
Switzerland	3,839,604	1,659,694	1,906,250
India	2,676,416	4,563,525	3,087,250
Newfoundland	3,820,008	3,572,776	5,927,250
Spain	3,112,636	2,826,369	4,371,500
Norway	3,427,848	1,713,539	1,060,777
Netherlands	3,582,512	216,299	293,750
Sweden	1,427,924	1,867,948	2,349,500
Canada	1,329,767	1,132,831	1,025,500
Denmark	571,258	382,244	195,250
Russia	369,109	67,162	1,250
Chili	404,351	1,028,084	350,777
China	164,853	18,036	158,500
Poss. of U. S.	.....	51,396	.....
Other British possessions	214,398	591,011	11,250
Paraguay	356,374	306,880	47,000
Japan	174,418	339,699	1,589,000
Greece	71,244	1,869	22,250
Turkey in Eu.	63,948	12,177	.....
Turkey in As.	54,037	2,660	.....
Cuba	30,037	15,843	27,000
Peru	11,176	7,722	7,000
New Zealand	40,199	163,991	.....
Mexico	.....	919,016	1,609,750
Total	\$826,025,511	\$209,484,487	\$247,851,250

The figures for the year 1919 were not available but during the first seven months the total foreign trade came to 2,050,762,000 milreis (milreis paper=about \$0.275, U. S.), the exports amounting to 1,289,390,000 milreis, and the imports to 761,372,000 milreis. As to quantity, the exports showed a total of 1,140,575 tons, and the imports, 1,708,103 tons. Both in volume and in value, the trade was much larger than in the same period of 1918.

RAILWAYS. The railroads in Brazil are divided into three groups: Those belonging to the Brazilian government, comprising 15,251 kilometers; those owned by private companies, with a trackage of 10,051 kilometers; and the railways of the state governments, which are 2464 kilometers in length. In the first group there are 6420 kilometers under the management of the government, and 8850 kilometers under management of leaseholding companies. Wishing to develop the railroad industry in Brazil, the government not only constructed or bought the railroads it owns to-day but assisted several companies by guaranteeing the interest on the capital invested in the construction of the lines. During 1918 the government paid nearly \$4,500,000 as guaranty of interest. The Sao Paulo-Rio Grande received \$2,671,286; the Victoria-Minas received \$1,082,269; the government's lines of the Sorocabana, \$321,263. The small line with 68 kilometers in traffic on the bank of the Tocantins River, \$148,399; the lines subsidized of the Leopoldina, \$174,340; and in Minas Geraes the Jaguara-Araguary line of the Mogyana system received \$133,105. The above information was supplied by the United States Bureau of Foreign and Domestic Commerce, but according to figures given out as official during the year the total railway length was 30,101 kilometers, distributed by states as follows: Sao Paulo, 6706; Minas Geraes, 6527; Rio de Janeiro, 3131; Rio Grande do Sul, 2756; Pernambuco, 2098; Bahia, 1839; Matto Grosso, 1168; Parana, 1064; Santa Catharina, 1018; Ceara, 891; Espirito Santo, 652; Para, 450; Parahyba, 368; Alagoas, 364; Rio Grande do Norte, 313; Sergipe, 292; Federal District, 187; Goyaz, 179; Maranhao, 91, and Amazonas, 6.

It was reported in 1919 that work was to be resumed on the extension of the Estrada de Ferro de Nazareth, as the legislature of the State of Bahia had established a credit for the carrying on of the work. This line had in operation 221 km. (137 miles); 30 km. (19 miles) in course of construction, and 35 km. (22 miles) surveyed. Work on this extension had been suspended since June, 1918, because of the failure of the State to provide funds for construction.

The effects of the World War were felt by the railways of Brazil both in difficulties and expense of maintenance and the inability to secure capital for necessary developments. It was realized in 1919 that there was much to be done for Brazilian railways and the raising of the tariffs was urged, though a 20 per cent increase had been made on the Central Railway belonging to the government and a similar increase authorized for the Sul de Minas system and for the F. de l'Est Bresilien. The reports for 1918 of three principal companies, the Sao Paulo Railway, the Leopoldina Railway and the Great Western of Brazil, show the following comparisons between the five years ended 1918 and the five years ended 1913:

		1909-1913 (INC.)				P.C. of exp.
		Average length of line	Average gross receipts	Average working expenses	Average net receipts	
Sao Paulo	153	22,066,989	\$1,268,213	\$798,776	61	
Leopoldina	1,681	1,492,104	925,751	506,353	66	
Gt. Western	953	644,282	427,868	216,414	66	

		1914-1918 (INC.)				P.C. of exp.
		Average length of line	Average gross receipts	Average working expenses	Average net receipts	
Sao Paulo	153	1,610,217	1,108,592	501,625	69	
Leopoldina	1,820	1,526,543	1,062,045	464,498	70	
Gt. Western	1,010	658,796	485,056	178,740	78	

FINANCE. Revenues for 1918 were as follows: 66,437 contos (conto=1000 milreis), gold, and 380,995 contos, paper, as follows: Import duties, 55,219 contos, gold, and 52,567 contos, paper; tax on consumption, 116,007 contos, paper; stamp tax, etc., seven contos, gold, and 43,746 contos paper; tax on incomes, 94 contos, gold, and 14,901 contos, paper; tax on inheritance 598 contos, paper; tax on industrial revenues, 486 gold, and 96,109 contos, paper; extra revenues, 221, gold, and and 38,933 contos, paper; special revenues, 10,407 contos, gold, and 14,766 contos, paper; lottery, 1067 contos, paper, and other revenues, three contos, gold, and 2301 contos, paper. The following table taken from the *Statesman's Year Book* shows the budget estimates for 1919:

Revenue	Gold milreis	Paper milreis
Import duties, etc.	82,072,400	66,564,000
Consumption taxes	.....	131,180,000
Circulation taxes	20,000	28,300,000
Tax on incomes	.....	6,610,000
Tax on lotteries	.....	1,400,000
Other revenue	.....	6,260,000
National patrimony and industries	1,800,000	104,492,000
Extraordinary revenue	24,141,084	119,650,000
Resources	100,000	150,000
	108,138,484	474,606,000
Less 5% set aside for special application	7,488,000	.....
Total general revenue	100,645,484	474,606,000
Revenue with special application	12,888,000	28,883,000
Total revenue	113,533,484	502,989,000

Expenditure		
Ministry of Justice and Internal Affairs	18,342	47,691,803
Ministry of Foreign Affairs	8,220,146	1,207,800
Ministry of Marine	200,000	49,478,213
Ministry of War	100,000	77,947,308
Ministry of Agriculture	606,680	17,545,868
Ministry of Transportation and Public Works	27,397,492	158,114,071
Ministry of Finance	48,827,167	124,656,681
Total expenditure	80,369,827	476,641,194

The budget estimates for 1920 fixed the nation's expenditures for the year at 80,953,000 milreis gold (gold milreis about \$0.546 U. S. gold) and 526,953,000 milreis paper (paper milreis=about \$0.275 U. S.), representing a decrease of 5,218,000 milreis gold and an increase of 61,555,000 milreis paper compared with the sums appropriated for the expenditures of the present year. The following official figures on the financial situation of Brazil were supplied by the *Pan-American Union*: Foreign indebtedness, £116,434,274 sterling; internal debt, 1,012,137,000 milreis; currency in circulation, 1,709,113,473 milreis; conversion fund, 20,922,410 milreis, gold; guarantee fund, 48,391,020 milreis,

gold; unredeemed bills and notes, gold and paper, 14,632,500 milreis. The general taxes of the country for 1918 were 103,519,715 milreis, gold, and 380,995,807 milreis, paper, as against 67,155,954 milreis, gold, and 341,070,891 milreis, paper, in 1917; 62,872,969, gold, and 316,187,516, paper, in 1916; 48,931,835, gold, and 313,159,829, paper, in 1915; 75,767,717, gold, and 268,992,658, paper, in 1914. The amounts added give the total of 358,248,190 milreis, gold, and 1,620,406,701 milreis, paper, as the national tax for the five-year period of 1914-1918 both inclusive. The public wealth of Brazil is calculated to be 30,000,000 contos, reckoned as follows: Unimproved property, 10,000,000 contos; improved property, 5,500,000 contos; personal property, 7,000,000; live-stock, 5,000,000 contos; railroads and ports, 2,000,000 contos; manufacturing industries, 500,000 contos.

GOVERNMENT. The executive authority is vested in a president who is elected for four years and is not eligible for a succeeding term. The legislative authority is vested in the National Congress consisting of the Chamber of Deputies and the Senate. The former has 212 members elected for three years by direct vote and the latter 63 members elected for nine years, of whom one-third are renewable every three years. President, Dr. Epitacio de Silva Pessoa, elected April 13, 1919, for the remainder of the period 1918-1922. At the time of his election he had been chief of the Brazilian delegation at the Peace Conference. He visited the United States in 1919. In January, 1919, it was learned that the Congress of Brazil had authorized the continuance during 1919 of the preferential treatment of certain American products. See EXPOSITIONS; WORKMEN'S COMPENSATION.

BREAD. See FOOD AND NUTRITION.

BREEDING. See LIVE STOCK.

BREEDING, PLANT. See BOTANY.

BRETHREN, CHURCH OF THE. This denomination, commonly known as "Dunkers," was organized at Schwarzenau, Germany, in 1708. It comprises a membership of about 100,000, with more than 1000 churches and 3300 ministers. It has established missions in India, China, Denmark, and Sweden, and is making active efforts towards the establishment of a church in Africa. Its missionary force on the foreign fields numbers 116, of whom 32 were appointed during 1919. The work of Home Missions is cared for through the medium of 47 State Districts in this country, each of which has a District Mission Board. Missionary contributions for the church for 1919 were \$277,417.91, while more than \$200,000 was raised for war relief work, its efforts being centred primarily in Armenia. The church is engaged in a Five Year Forward Movement programme which aims at very great expansion of its work during the next five years. Ten colleges are maintained, having in 1918 a total enrollment of 2434. Sunday Schools numbered 1271 with a total enrollment of 123,466 pupils and 12,459 officers and teachers. The headquarters of the various church boards are in Elgin, Ill., including the General Mission Board, General Educational Board, General Sunday School Board, General Christian Workers' Board, Temperance Board, General Relief Committee, and the Peace Committee. The publishing house is at Elgin, Ill., and the organ of the church is known as the *Gospel Messenger*.

BRIDGES. Bridge construction during 1919 in Europe involved principally the restoration of structures that had been destroyed during the war and the providing of temporary or permanent structures that would enable ordinary transportation and commerce to be resumed. In the United States the railway situation was such that no major improvements of any kind could be undertaken without their absolute necessity being more than demonstrated, and naturally in this class bridge construction fell. Therefore in 1919 there were no such structures as have been described in earlier YEAR BOOKS, such as those at Quebec, Hell Gate, Memphis, Metropolis, Sciotoville, New London and Louisville. The most important structure on which work was in progress was at the Baltimore and Ohio bridge at Pittsburgh. While there were discussions of proposed projects, several of which are outlined later in this article, the necessity for economy was also reflected in municipal and state operations so that there was but little activity in large highway bridges. In fact in many cases tunnel construction as an alternative often was favorably considered.

ECONOMIC SPAN LENGTHS FOR BRIDGES. An important paper on Economic Span Lengths for Simple Truss Bridges was presented before the Western Society of Engineers, Chicago, on Sept. 15, 1919, by Dr. J. A. L. Waddell, of Kansas City, Mo. In preparing this paper the actual cost of both substructure and superstructure for over 200 cases of bridge layouts covering the following combination was computed: Railway, highway, and combined railway and highway bridges, on concrete pier shafts overlying caissons or cribs raised on sand, bed-rock or piles reaching to depths below low water of 50, 100, 150, and 250 feet; also for low, medium and high conditions of the material market. As a result of the study and the incidental tabulation of results, Dr. Waddell drew the following deductions: That for all types of bridge the economic span length increases with the depth of foundation, though not necessarily in the same proportion. The lighter the superstructure and the live load carried the greater generally is the economic span length, and the greater the variation of the latter with the depth of foundation. For sand foundations there is not much difference in economic span length for low level and high level bridges of the same type. Structures with piers founded on bed-rock generally have economic span lengths somewhat greater than those of corresponding structures founded upon sand. Single track railroad bridges have economic span lengths a little less than those of the corresponding double track structures. Pile piers for high level bridges involve, for economic considerations, rather short spans, and for low level structures they usually necessitate such short ones as to require the adoption of plate girder superstructures. In highway bridges having very deep foundations on sand, increasing the batter of the shaft augments the economic span length. The use of nickel steel instead of carbon steel in the superstructure increases materially the economic span length. Dr. Waddell was also about to provide a check on the accuracy of the old methods of determining economic span lengths, and he found that the former rule for determining these amounts was not reliable, especially for foundations of

great depth, hence should not be used. This paper was printed in the *Railway Age* for Sept. 26, 1919, vol. 67, No. 13.

REVISED BRIDGE SPECIFICATIONS. A committee of the American Railway Engineering Association entered, at a meeting of that body in March, 1919, a proposed draft of the revision of the steel bridge specifications which had figured for many years in American Railway Engineering. These were originally drawn up in 1904, adopted in 1906, and slightly revised in 1910, since which time there have been changes in conditions due to increased weight of rolling stock and the use of special steels and other materials. The Association declined to accept the revision as drafted and referred it back to the committee for reconsideration, but it was not believed that a re-draft would depart very much from the general lines of the first draft. The specifications under discussion were limited to spans not exceeding 300 feet, as it was believed that beyond such dimensions a railway bridge presented special problems which could not be solved in general specifications. The submission of these specifications naturally aroused discussion as to the various bridge specifications in use on the leading railways, and it was found that not only was there a substantial difference in the proposed specifications of the American Railway Engineering Association over the old, but also there was a difference between those in use on the Southern Pacific prepared in 1909, on the Pennsylvania prepared in 1916, and on the New York Central prepared in 1917. These specifications were summarized and their outstanding features compared in *Engineering News Record* for July 3, 1919.

MILITARY BRIDGE ENGINEERING. One of the important engineering developments of the Great War in Europe was the development of military bridges adequate to the loads which modern military service required. This rendered obsolete many of the types used in the United States as well as in foreign armies, and a distinct tendency of the time was the use of civilian bridge engineering methods and the virtual abandonment of the systems of the military engineer as regards fixed bridges. In the Corps of Engineers of the American army, a bridge department was organized beginning with two engineer officers, which soon developed into an important force and was called upon in many operations. The bridge equipment even for pontoon bridging was most inadequate and required development as well as the fixed bridge material.

Showing the importance of bridge construction, Major Lewis E. Moore and Captain Marshall W. McDonald, in a paper in the *Engineering News-Record* for Oct. 9, 1919, vol. 83, No. 15, page 690, state that over the Meuse River between Verdun and St. Mihiel, approximately 33 km., the French constructed 23 crossings for wheeled traffic and 47 crossings for infantry. Between March and December, 1918, inclusive, the British army erected 562 highway bridges. The American First army built nearly a mile of bridges during the Meuse-Argonne offensive and immediately afterward, as the following table indicates. The table includes railway bridges, though the present article is confined to the subject of highway bridges:

LINEAL FEET OF BRIDGING							
	Number of Bridges	Strength- ened	Wid- ened	New Framed	New Trestle Pile	New A- Frame	New on Piles
Highway	40	1829	95	662	400	120	90
Stand-gauge. 12	230	..	..	305	186	..	..
60-cm. gauge. 12	330	..	..	276	195	..	..
Totals	64	1889	95	1243	781	120	90

The paper from which this is quoted and the succeeding article in the same journal, Oct. 16, 1919, page 734, contain a copiously illustrated summary of military bridge construction by the American Expeditionary Force.

PONTOON BRIDGES OF THE U. S. ARMY. The American Engineer Corps in Europe with the Army of Occupation carried on some pontoon bridge construction with remarkable speed and efficiency. The Third Corps Engineers maintained a Pontoon Bridge School at Hönningen on the Rhine, where the river is 1440 feet wide and has a current of nearly 7km. per hour. The river is approximately 25 feet deep in midchannel and has a rock bottom, so that bridge construction is rendered difficult, and a pontoon bridge is the most feasible from the military standpoint. On May 25th the 2d Engineers, using captured German pontoon equipage, consisting of 91 steel boats and three trestles, making 95 spans in all, and working from both banks, constructed the bridge in 58½ minutes, and immediately after its completion it was crossed by a field battery with full equipment. The bridge detail consisted of 400 men, half of whom had received 10 days' training and the other half but three days. The record made by this company did not stand long, for on June 8th the 1st U. S. Engineers did the same work in 41 minutes 8¾ seconds, at the end of which time they had the bridge in readiness for crossing and of sufficient capacity to accommodate the entire divisional traffic.

DETROIT RIVER BRIDGE. One of the interesting proposals of the year on which investigations were started was a bridge across the Detroit River to connect Detroit and Windsor, Canada. Gustave Lindenthal, engineer of the Hell Gate arch bridge, was appointed consulting engineer, and Charles E. Fowler chief engineer for the joint boards of American and Canadian companies which were to undertake the construction. The views most favored in 1919 were a double deck structure to carry roadway traffic, street cars and steam trains, and it was believed that either a cantilever or a suspension bridge of from 1800 to 2400 feet span would be adopted. A bridge of this size would rank among the greatest bridge structures of the world, and the estimated cost would be between \$20,000,000 and \$30,000,000. It was of course essential not to obstruct the heavy vessel traffic on the Lakes in any way, but it was eminently desirable to provide for the increase of traffic between Detroit and Windsor, which had become an important industrial centre in recent years.

On Dec. 2, 1919, a bill authorizing the city of Detroit to construct and operate a bridge across the American channel of the Detroit River to Belle Isle passed the United States Senate. This bridge was estimated to cost about \$3,000,000, and the original plan called for a bridge without a draw span, closing the American channel. Approval of this project was granted by

the local United States Engineer office, but was denied at Washington, a draw span being required, regardless of the height of the bridge. In order to carry out the design of the bridge with a solid span which shall close the American channel to vessels larger than pleasure craft and scows, further Congressional action was to be required. During the year the designs were being prepared for the approaches of the bridge, and a subway under Jefferson Avenue to separate traffic where the boulevard crosses Jefferson Avenue near the north approach to the bridge was an important feature. This subway was to have a roadway approximately 36 feet wide and a grade of about $3\frac{1}{2}$ per cent. It was planned to proceed with the bridge work, inasmuch as it would relieve congestion at the approach of the temporary bridge in use, while action was being taken with regard to the main span of the bridge.

CHICAGO RIVER BASCULE BRIDGE. During the year the longest single leaf bascule bridge ever built was completed over the Chicago River. This bridge was on the St. Charles Air Line, one of the first lines of railroad built in Chicago, which is a short east and west transfer line extending from the Illinois Central on the lake front in the vicinity of 16th Street to a point west of the Chicago River, being considerably less than a mile in length, but connecting the Illinois Central and the Michigan Central at the eastern end with the New York Central, the Chicago, Rock Island and Pacific, the Chicago, Burlington & Quincy, and the Chicago & Northwestern, being owned jointly by a number of lines and operated by the Illinois Central. The new record structure was built to replace a swing span constructed in 1882, 297 feet 6 inches long, and crossing the river at an angle of 42 deg. 45 min., providing two channels, one of 59 feet and one of 55 feet. For the new bridge the alignment and track arrangements were changed, making a shorter bridge, namely, of 260 feet length between the end bearings of the moving leaf, and affording a clear channel for navigation 200 feet wide. This bridge crosses the river at an angle of 63 deg. 28 min. The old bridge was used during construction. The substructure presented several unusual features. Although the east piers and the southwest piers of the west structure could be constructed by the "Chicago" method of open well excavation, the northwest pier on the west side required a puddle coffer dam, as it was close to a private slip. For the two east piers a cellular crib was developed on account of lack of sufficient earth cover over the rock, and a puddle wall was provided surrounding two interior cells on the sites of the two piers. This puddle wall enabled the level of the water to be reduced, and here sheet piling was driven in circles approximately the size of the piers. The space within these circles was then excavated to a depth of about two or three feet into the rock and filled with concrete, and this concrete structure was gradually brought up, the wooden cribs remaining as a protection to the structure. The bridge was erected in a vertical or open position, with the outer end some 265 feet above the track level, or about as high as a 22-story building, thus presenting difficulties in construction. The tower and counterweight trusses were first erected, while the moving leaf was erected by means of a tall

derrick more in the fashion of a tall steel frame building than a steel bridge. The span in its vertical position served as an enormous elevator shaft, in which the erection equipment might be considered the elevator, as the derrick moved upward as the structure was developed.

The Strauss Bascule Bridge Company of Chicago were the consulting engineers, the Foundation Company of New York built the substructure, work on which was begun in October, 1917, and completed in August, 1918. The superstructure was begun in October, 1918, and completed in August, 1919. The structural steel weighs 1544 tons, and the trunnion pins and operating machinery 166 tons. The main trunnions are 25 inches in diameter, the counterweight trunnions 40 inches, and the first and second link pins $20\frac{1}{2}$ inches and 31 inches respectively. This bridge is discussed with diagrams in the *Railway Age* for Dec. 12, 1919.

REBUILDING THE NIAGARA GORGE ARCH. The 550-foot steel arch double track railway bridge crossing the Niagara Gorge, Niagara Falls, N. Y., underwent reinforcement during the year, so that its capacity is adequate to meet the heaviest traffic and the increasing demands. This was carried out successfully by October 1, and involved a stress readjustment after a series of strain gauge measurements of primary stresses, secondaries and impact. The net result was that a bridge built 22 years previously was so strengthened as to meet modern conditions. Not only were bad and loose rivets found and removed, but the few parts, notably the railway floor members, which had deteriorated due to salt water drip from the trains were replaced or strengthened; these being the only evidences of deterioration of the Arch. As a result of the reinforcement the main arch was found amply strong for the heavier loads.

KANKAKEE BRIDGE OF ILLINOIS CENTRAL R. R. An interesting project completed during the year was a wide bridge for the Illinois Central Railroad at Kankakee, Ill., built as two bridges without interval by the use of the same equipment twice and two separate set-ups of the same centres. This was a 4-track, 6-arch railway bridge, with five 90-foot and one 60-foot barrel arch spans, with spandrel walls and a deck of precast slabs. It is 64 feet wide, face to face at arch rings, and including the piers the structure required about 16,000 cubic yards of concrete. It took the place of a single-track, three-span steel truss bridge, and construction of the new bridge was undertaken without interfering with the old. After the first half of the bridge was completed, tracks were shifted from the steel bridge to it, the older structure was removed, and the remainder of the new bridge was then built.

MISSOURI RIVER BRIDGE AT CHAMBERLAIN, S. D. The Chicago, Milwaukee & St. Paul Railway during the year completed a bridge across the Missouri River at Chamberlain, S. D., which showed the influence of the wartime conditions in the extraordinary use of pile piers to support 300 foot steel truss spans and a combination of reinforced concrete and timber that was distinctly novel. This particular structure took the place of a pile trestle, with a pontoon barge 366 feet long to meet government requirements for a draw opening for the river traffic, and two 300-foot single track through truss spans

released from a bridge over the Kaw River were purchased in 1917 from the Kansas City Terminal to be substituted for the original bridge. In 1918 the pontoon developed leaks, requiring its withdrawal from service, and after a temporary swing span was used, it was decided to construct a permanent bridge. For the substructure the construction determined on consisted of a combination of a piled pier supporting the superstructure, with a rock-filled ice break timber cribbing protected against scour by the high velocity of the current in flood season by willow mattresses and rip rap. The vertical load of the pier is carried by 70-foot piles capped by a grillage of cross timbers. In addition to the pile driving a certain amount of concrete was employed, including concrete covering to the nose of the ice breaker and a horizontal diaphragm or slab of concrete covering the entire area of the pier to receive the thrust of the ice pressure and transmit it uniformly to all the piles in the pier. With the piling and through the two trusses referred to, a 262-foot pontoon to replace the original one was constructed, and this was launched on Mar. 1, 1919.

RONDOUT CREEK BRIDGE DESIGN CONDEMNED. During the year the substructure work on the highway bridge over Rondout Creek at Kingston, N. Y., was stopped by order of the State Highway Commissioner, Frederick Stuart Greene, on the ground that the proposed foundation for the main pier was unsafe. Furthermore, it was plain that the superstructure could not be built for the available money, and as the design in his opinion was unsuited to the location, he withdrew the specifications for the superstructure from bidding April 22, two days before the bids were to be opened. The preparation of new designs was under progress later in the year, as the bridge is required as part of the new State highway from Kingston to Port Ewen, a link in the New York to Albany highway along the west bank of the Hudson River. The plans that were held up were made with regard to the War Department requirements, which fixed a clearance height of 85 feet on a width of 200 feet above Rondout Creek. The design condemned consisted of two steel arch spans of 360 feet with a rise of 110 feet, with a centre pier raised on a pile foundation, the piles going 60 feet below water. On either bank were two piers, which were solid up to the springing line of the arches. The centre foundation piles were driven inclined on a 1:5 batter alternately a pile row in one direction and a row in the other, with a view of securing stability against any unbalanced thrust developed by the two arches. On either side were two rows of vertical piles, 52 in number, but the batter piles were 338. The bearing pile cluster was enclosed by a wall of concrete sheet piles intended to serve as a coffer dam during construction, and subsequently as a bearing element for the outer part of the capping slab. The foundation was designed to carry a gross load—dead load plus live load—of something over 9000 tons, which in Commissioner Greene's opinion was too high for the piles. It was stated by Commissioner Greene that the State of New York had suffered a financial loss of \$47,916.40, of which \$37,500.97 represented payments to contractors. The criticism of Commissioner Greene on the design and work done on the

foundation was replied to by H. Eltinge Breed, Deputy Commissioner of Highways under the previous administration, and W. R. Davis, who was the author of the original design, who argued that the bridge was safe and that the design was proper and could be constructed for the available funds. In place of the original design, Highway Commissioner Greene directed Daniel E. Moran, a civil engineer who had specialized in foundations, to prepare new designs, and a massive concrete viaduct with concrete arch spanning the canal was planned.

MEMORIAL BRIDGES. As war memorials monumental bridges were under consideration in many American cities as ornamental architectural features readily could be introduced to carry out the underlying idea. One of the largest of these memorial bridges, the State Soldiers and Sailors' Memorial Bridge across the Susquehanna at Harrisburg, Pa., was contracted for during the year at a cost of \$2,384,458. This bridge was to be put under way before the end of the year.

LIFTABLE SPANS AT PITTSBURGH. A proposition was made during the year that the new Allegheny River bridges at Pittsburgh, which were being designed to meet the War Department's requirements as to span length and navigation clearance, be equipped with liftable spans instead of fixed spans, in order to accommodate them to the clearance requirements at all river stages. The height dictated by the maximum stage of water naturally conditioned the building of fixed spans, and this involved steep approach grades. With the liftable span system, the steep grades would only be required at high flood stages.

That replacement of engineering structures after years of service is required was shown by the fact that the renewal of two old bridges over the Willamette River was under consideration by the Multnomah County, Oregon, commissioners. These were the Burnside and Morrison bridges, whose condition was thought to be becoming dangerous. A cost of \$2,000,000 was like to be involved in the replacement of these important structures.

Among new construction in the south is the St. Johns River bridge at Jacksonville, Fla., on which work started on September 25th. The foundations involved an outlay of \$374,447, this sum covering also the approaches. The superstructure to be built by the Bethlehem Steel Bridge Corporation, Bethlehem, Pa., was to cost \$534,180.

BRIGHT'S DISEASE. This affection was originally looked upon as medical almost exclusively, something to be studied, recognized and treated by the physician. Surgical kidney so-called was relatively a narrow subject. Gradually the surgeon has encroached on the original domain of the physician in pathological study, diagnosis and treatment, until the ratio of medical to surgical cases has become markedly altered. Generally speaking, when both organs are simultaneously attacked by a process that involves a pathological blood state and in which surgical measures are unavailing, the condition is classed as medical. Quite recently, however, William J. Mayo, the distinguished surgeon, has written a paper on what would ordinarily be called medical nephritis; and this fact is significant. The term Bright's disease he restricts to disease affecting both organs and due

to some blood or general state. He isolates acute and chronic forms which have nothing in common. The acute form occurs in the midst of or following some one of the infections which attack the skin or mucous membranes, as scarlatina and diphtheria. The organs are large, white and soft, and oedema, while not always present, is very common and due to retention in the blood of the chlorides, as shown by the fact that a salt poor diet will dispel the dropsical swelling. The urine is scanty and loaded with albumin. This typically acute form may occur at times in a subacute and even a chronic form, but must not be confounded with the typical chronic Bright's disease to be discussed later. The patient often recovers from the acute type of the disease. The second great form of medical nephritis differs radically from the first, begins insidiously, cannot be brought in direct relation with organisms in the blood but is often associated with cardiovascular disease, and high blood pressure and is technically incurable, although patients may live 20 and even 30 years with it. The urine is not diminished and is often increased in amount and lropy and albuminuria are mostly absent. The foregoing is merely a résumé of what is common knowledge, but Mayo now calls attention to a third type of disease due to an organism in the blood, which does not involve the kidneys equally and may be limited to one organ. It may pass for Bright's disease but is not entitled to this designation. A kidney which is inferior because of some congenital defect is often attacked. The infecting germ may vary not only in kind but in virulence. Thus we have hyperacute or fulminating cases which if both kidneys are involved quickly destroy the patient; while if one organ is attacked and destroyed its surgical removal may save the patient's life. If the infection is less intense more or less local mischief requiring surgical aid may develop in or around the organs. The organisms do not long survive in the blood, so that attempts to isolate them may fail. The local abscesses may produce scar tissue and deformity in the kidneys, which at a later period may demand further intervention. Deposits of lime salts in these kidneys are often confused with renal calculi in X-ray diagnosis. The author concludes with the statement that the general interest of the surgeon in the kidney now at least equals that of the physician, while the fact that he is always operating gives him a considerable advantage in actual knowledge of diseased kidneys. The physician has been and still is at a disadvantage because as a rule he must depend on autopsy finds for this information. The two fundamental forms of medical nephritis may be accidentally associated in the same kidney and neither form may be associated with the third form, and these mixed cases are naturally the most difficult of recognition and treatment.

BRITISH COLUMBIA. A maritime province of Canada on the Pacific Ocean extending from Alberta to Alaska with an area of 355,855 square miles inclusive of inland waters, and a population according to the census of 1911 of 392,480, estimated in 1917 at 396,800. The chief cities with their estimated population in 1918 were: Victoria, the capital, 45,000; Vancouver, 99,000; New Westminster, 15,000; Nanaimo, 8000; Nelson, 7000. The executive

power is vested in the Lieutenant-Governor, appointed by the Governor-General of the Dominion, who acts through a responsible ministry or executive council, consisting of eight members. The legislative power is in the legislative assembly of 47 members elected for four years by direct male and female adult suffrage. Lieutenant-Governor at the beginning of 1919, Sir Frank S. Barnard; Prime Minister, John Oliver. See CANADA.

BRITISH EAST AFRICA. The area on the mainland of Africa comprising East Africa Protectorate, Uganda Protectorate and Zanzibar Protectorate. See these articles.

BRITISH GUIANA. A South American British colony on the northeastern coast including the settlements of Demerara, Essequibo, and Berbice; bounded on the east by Dutch Guiana, on the south by Brazil, and on the west by Venezuela, and on the northeast by the Atlantic Ocean. Area, 89,480 square miles; population (1911) 296,000; estimated, Jan. 1, 1918, 314,000. According to the estimates of 1917, 62,400 were living on the sugar estates and 125,800 in villages and settlements. The East Indians on that date were placed at 75,740. Out of the total population 105,400 were agricultural laborers. Of the surface only 198,352 acres were under cultivation in 1918, the leading crops in point of acreage being rice, sugar cane and coconuts. The chief domestic exports are sugar, rum and rice.

	1914	1917
Imports	21,766,094	23,271,017
Exports	2,623,064	4,315,939
Revenue	586,593	786,478
Expenditure	622,025	788,689
Shipping * .....	.....	682,906

* Tonnage entered and cleared.

Exports in 1918, \$16,919,029; imports, \$16,292,508.

The United States continued the increase in imports of 1917, the gain in 1918 being \$1,342,483, or 22 per cent. The United States supplied 44.5 per cent of the total imports, the United Kingdom 25.7 per cent, Canada 16 per cent, and other British possessions 10.8. The export trade, however, was largely with the United Kingdom and Canada, the United States taking only 5.7 per cent of the total exports as compared with 46.2 per cent by the United Kingdom, 33.3 per cent by Canada, and 6.6 per cent by other British possessions. The total trade of the colony was divided as follows: The United Kingdom 36 per cent, Canada 24 per cent, the United States 24 per cent, other British possessions 6 per cent, and all other countries 10 per cent.

BRITISH GUINEA. See PAPUA.

BRITISH HONDURAS. A British crown colony on the coast of Central America south of Yucatan and 660 miles west of Jamaica. Area, 8598 square miles; population (1911) 40,458; estimated, Jan. 1, 1918, 42,732. Only a small part of the land is under cultivation. The main sources of wealth are mahogany and other forest products. The chief imports of 1917 were gum, flour, boots and shoes and the chief exports were mahogany, bananas, coconuts, gum, and logwood. Statistics for two years follow:

	1916-17	1917-18
Imports	£553,765	£574,850
Exports	259,641	550,300
Revenue	131,782	.....
Expenditure	126,294	.....
Shipping *	863,916	686,987

* Tonnage entered and cleared.

BRITISH INDIA. See INDIA, BRITISH.

BRITISH NEW GUINEA. See PAPUA.

BRITISH NORTH BORNEO. A British colony occupying the northern part of the island of Borneo, under the jurisdiction of the British North Borneo Company and administered by a governor in Borneo and a court of directors in London. The British government proclaimed a formal protectorate over the State of North Borneo on May 12, 1888, and certain additional lands were acquired in 1898 and later. The area is about 31,106 square miles; population (1911) 208,183 chiefly made up of Mohammedan settlers on the coast, and native tribes in the interior. In 1911 the Europeans numbered only 353. The number of natives has only been roughly estimated and is placed at about 170,000, the most numerous being the Dusuns. In 1911 the most numerous foreign element residing in the territory was the Chinese, who numbered about 26,000. The trade is with Great Britain and the colonies chiefly through the ports of Singapore and Hong Kong. The chief products are coconuts, gums, coffee, and a variety of table fruits, vegetables, spices and tobacco. A railway 127 miles long connects Jesselton on the coast with Melalap in the interior. Statistics for 1916 and 1917 are as follows:

	1916	1917
Revenue	£249,587	£280,480
Expenditure	170,045	170,685
Imports	500,933	624,487
Exports	1,014,142	1,076,073

BRITISH SOMALILAND. See SOMALILAND PROTECTORATE.

BRITISH SOUTH AFRICA. See SOUTH AFRICA, UNION OF.

BRITISH WEST AFRICA. A term including the British colonies and protectorates in West Africa namely Nigeria (colony and protectorate), Gold Coast (comprising the Gold Coast Colony, Ashanti, and the Northern Territories), Sierra Leone (colony and protectorate), Gambia (colony and protectorate). See these separate titles.

BROOKLYN INSTITUTE OF ARTS AND SCIENCES. Founded in 1824 and reincorporated in 1890, this institute consists of four departments, namely, the Department of Education, headed by Charles D. Atkins; the Department of Museums, including the Brooklyn Museum and the Children's Museum, headed by William H. Fox; the Department of Botanic Gardens, headed by C. Stuart Gager, and the Department of Biological Laboratory, headed by Charles B. Davenport. Addresses, lectures, courses of instruction, concerts, and meetings are offered by the educational department. Each year many important men lecture, and eminent artists give concerts. Only very small fees are charged for these opportunities. The School of Pedagogy is one of the well-known features of this institute. The art, ethnology, and natural

science departments of the Brooklyn Museum are among the finest in the country. The Brooklyn Botanic Garden ranks among the leading botanic gardens of the country. The total membership in all departments at the close of 1919 was 9905. The total attendance for the season 1918-1919 was 1,004,425. The total receipts for the same year were \$424,824.58, and the permanent funds were \$1,041,142.26. There are branches of the Institute at Jamaica and Huntington, Long Island. The President of the Board of Trustees was A. Augustus Healy.

BROWN, DANIEL RUSSELL. Former governor of Rhode Island, died at Providence, R. I., February 28. He was born at Bolton, Conn., Mar. 28, 1848, and founded the firm of Butler, Brown & Company in Providence, which afterwards became the Brown Brothers Co. He was governor of Rhode Island from 1892-5.

BROWN UNIVERSITY. An institution of higher learning, located at Providence, R. I. The enrollment for the fall of 1919 was as follows: freshmen, 277; sophomores, 220; juniors, 174; seniors, 182; specials, 79; graduate students, 106; women's college, 270. The faculty contains 78 members, exclusive of assistants, etc. The library contains 270,000 volumes. During the year a new Language Building was erected, and also a Memorial Arch. In effect September, 1919, the entrance requirements were modified by reducing the language requirements and increasing the number of electives; a comprehensive psychological test is also required. The requirements for degrees of A.B., Ph.B. were also changed at this time. Brown University was founded in 1764. President, W. H. P. Faunce, D.D., LL.D.

BRYN MAWR COLLEGE. An institution for the education of women located at Bryn Mawr, Pa. Enrollment on Nov. 25, 1919 was 458, and there were 67 members in the faculty. Productive funds amounted to \$2,002,195, and the income for the year was \$93,989. The library contains 94,000 volumes. Bryn Mawr is one of the educational institutions to benefit under the will of the late Mrs. Russell Sage. A campaign is in progress for a \$2,000,000 Endowment Fund to increase the salaries of the teaching staff. During the absence on leave of President M. Carey Thomas, Miss Helen Herron Taft is acting president. The college was founded in 1880.

BUBONIC PLAGUE. While this affection has not recently threatened any serious invasion of countries outside its natural habitat, it has received a good deal of prominence from the close resemblance between the pneumonic form and the severest type of influenza. A comparison between the two may therefore be instructive. In its natural home in Asia the plague is primarily a disease of rodents, chiefly of the rat, and is conveyed from the latter to man through the bite of the rat-flea, which leads incidentally to the external swellings known as buboes, which are the most noticeable feature of the malady. Secondary pneumonia develops and when this is directly contagious from man to man we see the pneumonic form of the pestilence, which is diffusible without the intermediation of the flea. The two expressions of the disease usually flourish side by side, and exceptionally we see the pneumonic form alone, which has the highest mortality of any infectious disease, this being at times 100

per cent. In order to compare the bubonic plague in its double form with influenza we may take the experience of the city of Dakar in Senegal. In September, 1918, influenza appeared there in virulent form and its nature was not at first recognized. Patients suffering with the disease introduced it into Rio Janeiro through the regular steamship travel between the two seaports and the disease spread later throughout South America. During 1914-15 the same city had a visitation of the bubonic plague which did not first appear in the local rats but in man, in the pneumonic form. The contagion was traced to some small plague focus in Africa and vigorous measures of all kinds were used to combat it. While influenza attacked all parts of the city and all strata of society the plague was limited to certain quarters, streets and houses and spared inhabitants of European origin. And while the wave of influenza ran its course quickly according to its wont the plague persisted for about eight months, gradually dying out. After the first two months or so of the epidemic the rats were attacked for the first time and bubonic began to be reported side by side with pneumonic cases. The preventive measures found useful for the plague would have been helpless against influenza.

BUCKWHEAT. The area devoted to buckwheat in the United States in 1919 as estimated by the Department of Agriculture was 790,000 acres, while in 1918 it was 1,027,000 acres and for the years 1913 to 1917 inclusive 824,000 acres. The sudden and marked reduction in area was due largely to the end of the war. The increase in the culture of the crop had been the result of the greater use of buckwheat flour in the diet of the people of the United States to make larger quantities of wheat flour available for European requirements.

The total production was placed at 16,301,000 bushels as compared with 16,905,000 bushels in 1918 and 14,891,000 bushels for the five-year period of 1913-17. The very satisfactory average yield per acre, 20.6 bushels, as compared with 16.5 bushels the year before largely offset the reduced acreage. The average farm value of buckwheat on December 1st was estimated at 147.4 cents per bushel as against 166.5 cents and 100.7 cents, the corresponding bushel values in 1918 and for the five-year period respectively. On the basis of these prices the total value of the crop was \$24,026,000 in 1919, \$28,142,000 in 1918, and \$14,792,000 the average for the years 1913 to 1917, inclusive. The legal bushel weight of buckwheat in the different States ranges from 40 pounds in California to 56 pounds in Kentucky. The legal weight as established by Federal statute and by the laws of 15 States including most of the principal buckwheat producing States is 48 pounds per bushel.

A brief treatise on the culture and uses of this crop was published during the year by the United States Department of Agriculture as Farmers' Bulletin No. 1062.

BUEHLER, WILLIAM GEORGE. American naval officer, died at Philadelphia, Pa., August 10. He was born at Philadelphia, Mar. 25, 1837, and entered the navy in May, 1857, rising to the rank of chief engineer, Nov. 10, 1863. He was an officer of the United States steamship *Niagara* at the time when the first Atlantic telegraph

was laid. During the Civil War he was chief engineer on board the *Aroostook* 1861-2 and on board the *Galena* 1863-5 and he took part in the attacks on James River and at the entrance of Mobile Bay under Farragut. From 1894 to 1899 he was in charge of the department of steam engineering in the Portsmouth Navy Yard. He retired Mar. 25, 1899.

BUFFALO. See GARBAGE.

BUHLIG, RICHARD. See MUSIC, *Artists, Instrumentalists.*

BUILDING. Although difficulties in the way of securing materials and labor, together with their high cost, were evident in 1919, yet an estimate made at the close of the year placed the total of new building projects at an aggregate of \$2,600,000,000 including engineering construction. Of this amount one-third was stated to be residential, one-third industrial, 15 per cent for general business and 10 per cent for public works and utilities. There was available for building considerable capital, but uncertainty in regard to material costs, which together with labor were increasing, curtailed a certain amount of construction and in some localities as in previous years, continued to render speculative building impossible. Throughout the United States, and particularly in the large cities of the East and their suburbs, there was a considerable shortage of housing so that the building problem was indeed serious and related to general welfare. At the end of the year an estimate made of building operations in the great New York district gave \$550,000,000 as the total of the projects put under way, over one-third of which was residential. This was not so much the case in Manhattan where notwithstanding the shortage of homes, the greatest activity was in business projects as lack of space had brought rents to unprecedented figures. The Boroughs of Brooklyn and Queens experienced a great advance in home construction, especially in small houses in the suburbs which were occupied as soon as finished. The improvement of transportation facilities naturally influenced this demand but the shortage of accommodations in the city proper was a further impelling force.

Chicago experienced the third greatest building year in its history, 1919 being exceeded only by 1911 and 1916. In 1919 6523 building permits for all classes of structures were issued, representing \$102,906,150. As in New York this included a large number of small homes. In the Middle West generally there was considerable capital available for building and after the prosperity of the previous five years, an unprecedented amount of building was under way. An estimate based on reports of 11 months' activity in Illinois, Indiana, Iowa, Wisconsin, Michigan, Missouri, and Kansas, gives a total outlay for that time of \$820,506,000. In New England an outlay of \$207,288,000 for the year represented the demand for homes while in the middle eastern section many districts had records of nearly double those of the best previous years.

ZONE LAWS IN PHILADELPHIA. The tendency toward passing zone laws in the large cities of the United States was reflected in a movement in Philadelphia, where a proposed city ordinance was under active discussion during the year. This ordinance, drafted by the Philadelphia Zoning Commission, provided for five

classes of buildings as regards height, based on street width, these classes being 1, 1½, 2, 2½ and 3 times the street width respectively. In addition to this, in each district the buildings may not exceed a maximum height varying from 40 feet in the one-times district to 150 feet in the three times the street width district. Above such heights the buildings must recede from the building lines at a certain proportion, which is one foot for every foot of elevation in the one-time district, and one foot for every 3 feet excess height in the three-times district. As regards classes of buildings, four districts are provided, namely, residential, commercial, industrial, and unrestricted, the latter containing such industries as are obnoxious because of excessive noise, odor or smoke. Public garages are not permitted in the residential district, and the capacity of private garages is limited in proportion to the size of the lot. There are also classes of area districts in which the buildings are restricted to certain proportions of the lot, varying from the Class A district, where buildings may not cover over 30 per cent, to the "E" Class, where they may cover 90 per cent. The scheme has been worked out in considerable detail by a representative commission representing various interests of the city, and was under active discussion at the end of the year in Philadelphia.

ZONING ORDINANCE FOR NEWARK, N. J. A zoning ordinance providing for the regulation of building in Newark, N. J., specifying building heights and uses, and localizing types of construction, was before the Newark City Council during the year 1919. This was a further example of the tendency in large cities to attempt to control and symmetrically develop the city through intelligent restriction of building.

TO LIMIT HEIGHT OF BUILDINGS IN WASHINGTON, D. C. The House of Representatives passed a bill to regulate the height, area and use of buildings in the District of Columbia, one feature of which was the provision for a zoning commission, which was to consist of three commissioners in the District of Columbia, the officer in charge of public buildings and grounds in the District of Columbia, and the superintendent of the Capitol buildings and grounds. This bill was patterned after the New York and St. Louis zoning laws. See CITY PLANNING.

BUILDING OPERATIONS. See FINANCIAL REVIEW.

BUKOWINA. A crownland and titular dukedom of Austria, lying to the south of eastern Galicia, with Russia and east Rumania on the east and Rumania on the south. In the unsettled conditions following the disruption of the Austro-Hungarian monarchy in November, 1918, the exact statistics were not available. Its area and population when forming a part of the Austrian kingdom were according to the census of 1910: Area, 4033 square miles; population, 800,098; estimated population in 1913, 818,328. In the Austrian parliament it was formerly represented by 14 members, one for every 57,150 inhabitants. Capital, Czernowitz, with a population of 87,113 (1910)—estimated June 30, 1914, 94,000. For further details see preceding YEAR BOOK.

BULGARIA. A European monarchy situated in the Balkan peninsula, to the south of Rumania and to the east of Serbia. During the great war Bulgaria began by maintaining a

nominal neutrality but favored more and more the side of the Central Powers and finally on Oct. 12, 1915, declared war against Serbia. From that time she was definitely ranged against the Allies, and she was the first to suffer defeat. In October, 1918, she surrendered unconditionally to the Allies and the Czar Ferdinand was forced to abdicate, and was succeeded by his son Boris. See under *Government*, below; also *WAR OF THE NATIONS*.

AREA, POPULATION, ETC. The estimated area in 1917 was 47,750 square miles; estimated population 5,517,700. No figures are available later than those given in the preceding YEAR BOOK. The following table showing the area and population according to the census of Dec. 31, 1911, is taken from the *Statesman's Year Book*:

	Area sq. miles	Popula- tion
1. Bourgas	5,409	351,508
2. Varna	2,554	329,612
3. Vidin	3,255	237,571
4. Vratsa	773	312,460
5. Kustendil	867	231,522
6. Plovdiv (Philippopolis)	3,238	447,309
7. Pleven	1,851	365,868
8. Rousse (Rustchuk)	2,135	406,809
9. Sofia	1,832	481,598
10. St. Zagora	6,540	442,969
11. Tirnovo	2,502	448,197
12. Choumen	2,691	282,601
Total (1910)	38,647	4,337,516
Total (1912) .....	.....	4,432,427

The religion is Greek Orthodox though the Bulgarian church was declared in 1870 to be outside the Orthodox communion. It is under the government of a synod of bishops. Education is subsidized annually by the State to the extent of one-half of the cost in general and two-thirds of the cost of elementary schools. The remaining costs are paid by the local authorities. Instruction is free and nominally compulsory between the ages of eight and 12. There is a university at Sofia with the four faculties of history; physics and mathematics; medicine, and law. Before the war the attendance at the elementary schools was 290,800 boys and 213,963 girls.

PRODUCTION, INDUSTRY, COMMERCE, ETC. The chief occupation is agriculture which engages about five-sevenths of the population, for the most part small proprietors of from one to six acres. The chief crops have been wheat, tobacco, barley, rye, oats and corn. Fruit also is raised in abundance. The State owns the minerals and the government works the coal mines of Pernik. Coal is also worked under concession in the region of Trevna in the Balkans. Stone is quarried in large quantities; iron is plentiful; gold, lead, silver, manganese and copper are found. The chief manufactures are woolen goods, cottons, cord, and cigarettes. Nearly 400 industrial institutions are reported to be in receipt of State aid. Commerce statistics before the war showed Austria-Hungary and Germany as by far the leading importers. Next on the list of importing countries was the United Kingdom. In the value of exports, while Austria-Hungary and Germany were in the lead, the United Kingdom and Belgium were not far below. The chief imports down to the beginning of the war were: metals, machinery, textiles, hides, leather, etc., cattle and cereals; and the chief exports were

wheat, corn, live-stock, silk cocoons, hides, attar of roses, etc. According to the Board of Trade returns imports to the United Kingdom fell from £195,143 in 1914 to only £800 in 1916. Exports from the United Kingdom fell from £857,856 in 1914 to £185,505 in 1915. In 1913 the vessels entered were 11,755 of 3,132,481 tons and cleared 11,710 of 3,108,505, the chief ports being Varna and Bourgas on the Black Sea and Rustchuk, Widin and Sistor on the Danube. Railway mileage in 1916 was placed at 1675 (State) and 149 (private companies); total 1,824. Telegraph lines in 1914, 3692 miles.

FINANCE. The budget estimates for the year 1918 are as follows: Revenue, 481,100,000 leva; expenditure, 479,414,019 leva. Consolidated debt, Dec. 1, 1917, 108,131,364 leva; floating debt, 2,324,200,215 leva. A lev (plural leva) is equivalent to a franc.

DEFENSE. Before the war the Bulgarian army consisted of nine field divisions in peace time and 14 in war. Its peace strength was about 3900 officers and 56,000 men; its war strength about 280,000. The Bulgarian troops were expelled during September, 1918, from the Serbian and Greek territories with a loss of over 30,000 prisoners and 400 guns. The armistice was granted on September 30th and demobilization immediately followed. On October 6th, 25,000 Bulgarians surrendered and on the 10th, 90,000 with more than 2000 guns. The casualties during the war were estimated at 200,000.

GOVERNMENT. The government is fixed by the constitution of 1879 as amended in May, 1893 and June, 1911. The executive power is in the king and a council of eight members nominated by him, and the legislative power is in a single chamber called the Sobranje, whose members are elected for four years by universal manhood suffrage. The king's consent is necessary to measures passed by the Sobranje. There is also a special body known as Grand Sobranje which is elected in the same manner as the regular assembly but contains double the number of representatives. It is called together to consider questions involving changes of territory or in the dynasty. Boris III succeeded on the abdication of his father Ferdinand I, Oct. 4, 1918. He was the eldest son (born Jan. 13, 1894), the other children being Prince Cyril (born Nov. 17, 1895) and the Princesses Eudoxia and Nadeja (born in 1898 and 1899 respectively). He was baptized for political reasons in the Orthodox Greek Church. The ministry appointed Nov. 28, 1918, and holding office at the beginning of 1919 was as follows: Premier and Minister of Foreign Affairs, T. Todoroff (Gueshoff's Party); Minister of the Interior, N. Moushanoff (Democrat); Minister of Finance, Dr. Daneff (Progressive); Minister of Justice, Dr. Djidroff (Unified Socialist); Minister of War, A. Liapcheff (Democrat); Minister of Commerce, I. Sakasoff (Unified Socialist); Minister of Agriculture, D. Draghieff (Peasants' Party); Minister of Public Works, Alexander Stambolisky; Minister of Posts and Railways, M. Bacaloff, (Peasants' Party); Minister of Education, S. Kostwikoff (Radical). The treaty with the Allies was signed on November 27th.

FRENCH CAPITAL IN BULGARIA. The part played by French investment in the economic life of Bulgaria was large, especially in regard to the public finances. The funds for nearly the whole of the public debt of Bulgaria

before the Balkan war were raised on the Paris market. In 1907 the Banque de Paris et des Pays-Bas floated a loan of 145,000,000 francs, the last one raised in France. The same bank in 1912 floated Bulgarian treasury notes not to exceed 80,000,000 francs. Aside from government loans, French interests had, since 1909, taken a considerable part in the development of local industry as for example in sugar manufacture and mining, but the French capital engaged in banking enterprises was greater. French money was also invested in insurance and in Bulgarian public enterprises, such as the construction of the Sofia-Roman Railway, the Oktchilar-Dedeagatch branch on the junction line Salonica-Constantinople. The amount of French capital invested in Bulgaria before the last great war was placed at approximately 700,000,000 francs.

HISTORY

REPORT ON ATROCITIES. The inter-Allied commission published their volume on the alleged Bulgarian atrocities during the summer. It was a work of 635 pages consisting almost entirely of testimony and was entitled *Report of the Inter-Allied Commission Upon the Violations of the Law of Nations, Committed in Macedonia by the Bulgarian Armies*. Since the beginning of the war and even before it many writers had borne witness to the cruelty displayed by the Bulgarians in war time. Frequent charges of this kind had been made during their wars with other Balkan Powers. Greece had repeatedly made these accusations but they had not been believed, and finally the Greek government had prevailed upon the Peace Conference to appoint an inter-Allied commission to make inquiries in Eastern Macedonia, to consist of five members, one from each of the following countries, France, England, Belgium, Serbia, and Greece. Their testimony was complete on April 21st, but the book was not published till the middle of August. From this it would appear that there had been a settled policy on the part of the government at Sofia for the de-nationalization of Eastern Macedonia. In order to make the territorial claims of the government appear plausible, the commissioners declared, Bulgaria had systematically carried out a plan for the destruction of the orthodox Greek population. The inquiry had been conducted in 339 cities and villages and had extended over a population of 305,000. In other words, it had applied to the larger part of the country. The results were classified under arrests, terror, requisitions, forced labor, spoliation, extortion, pillage, starvation, rape, kidnapping of children, taxation, destruction, and deportations. Before the entry of Greece into the war, Bulgarian troops had penetrated with the connivance of the Greek King into Greek Macedonia. In June, 1917, Greece declared war against Bulgaria, but the Bulgarians had already treated the Greek Macedonians as a conquered race. It was reported that they did not resort to the violent methods of the Turks, but especially to starvation as a means of destroying the people. This policy was said to have been carried out deliberately and methodically. Under the pretense of requisitioning they confiscated without any formalities the entire harvest and all the live-stock, and the population of course was immediately brought to the verge of

starvation. Then in the villages they made levies of men and women and even children to serve as workers at a distance and they employed them in military works without shelter or clothes and with a starvation ration. They had at the beginning deported into Bulgarian territory all men between the ages of 18 and 55. Their plan appeared to be to introduce a system of famine, spoliation, execution, and outrage that would make it impossible for the Greeks who survived to remain in the country. The policy was largely successful and in two years the population was nearly annihilated. The figures given in the report were as follows: 94 villages literally destroyed; 32,000 Greeks died on the spot of whom 30,000 perished from starvation or violence; 42,000 were deported into Bulgaria, and 12,000 were forced by their sufferings to immigrate there; of these 54,000, 12,000 died in Bulgaria. The report further concluded that far from being the result of the criminality of an uncontrolled soldiery, the atrocities had been designed and organized by the government of the Bulgarian military staff, and it concluded as follows: "Not a single civilized people would dare apply to criminals under the common law the treatment which the people deported from Eastern Macedonia suffered. How should a government be described which has shown so deep a spirit of treachery; which so readily breaks its word and which disregards the rules of international law and the most elementary principles of the law of nations; which condemns to punishment many thousands of inoffensive persons; which does not hesitate at any means, however barbarous, to satisfy its appetites, cupidity, and ambitions? We simply say that it is a dangerous element not only for its immediate neighbors but for all civilized human beings."

THE NEW MINISTRY. The Bulgarian treaty was signed at Neuilly in the vicinity of Paris on November 27th. Toward the end of the year a new ministry was formed under M. Stambolisky, leader of the Agrarians, who headed the Bulgarian delegation to Paris that signed the treaty. It was composed of members favorable to the Entente and was formed with the programme of signing the treaty and bringing to justice the men of Ferdinand's régime who had led the country to disaster. One of its earliest acts was to order the arrest (November 4th) of all members of the former ministry and of Parliament, and all leaders, officials, and journalists "who by their conduct have given Germanophile tendencies to Bulgarian politics and have contributed to the catastrophe of the country which involved Bulgaria in war." The arrest of 400 persons was ordered and the authorities began at once to carry it out. The Prime Minister on returning from Paris, December 15th, declared at a cabinet meeting that the ex-Czar would be tried and that the government would at once take measures to extradite him. While signing the treaty the government took steps toward a commercial understanding with Greece. A Bulgarian-Greek convention was signed at Paris the same day (November 27th). It permitted free emigration for two years and established a mixed Bulgarian-Greek commission to supervise and promote it. Its main object was to safeguard the interests of the respective racial minorities. The government did not sign the treaty of November 27th with the Entente without a protest. It complained of the loss

of Thrace, the Dobruja, Vidin, Bossilegrad, Strumitza, and Tzaribrod, claiming that a plebiscite would have shown Bulgarian majorities.

BURGESS, GEORGE FARMER. Former member of Congress, died, December 31, at Gonzales, Texas. He was born in Wharton County, Texas, Sept. 21, 1861; was admitted to the bar in 1882, and practiced law for many years. He was presidential elector in 1892 and a member of Congress from 1901 to 1917. In politics he was a Democrat.

BURMA. The largest and most easterly province of British India. Area 230,839 square miles; population (1911) 12,115,217. The population is much diversified in respect to race having nine chief racial groups, of which the Burman is the chief. This main stock with its allied branches came from Tibeto-Burman tribes who originated probably in the interior of Tibet and invaded Burma in the pre-historic period. Burma is separated from China by the Shan States. The chief languages are Burmese, which is spoken by about 8,000,000 and Karen spoken by about 1,000,000. The chief industry is agriculture and rice is grown almost everywhere. Its export in 1916-17 was placed at 2,055,688 tons. Other exports included wheat, cotton, tobacco, sugarcane, onions and a variety of vegetables and fruits. Teak-wood abounds in the extensive forests. Mineral products include petroleum, wolfram, and gems. The petroleum output in 1917 was placed at 291,769,083 gallons. Capital of Lower Burma, Rangoon, with a population of 293,316; of Upper Burma, Mandalay, with a population of 138,299. The lieutenant-governor at the beginning of 1919 was Sir Reginald Henry Craddock.

BURNETT, JOHN LAWSON. Congressman, died at Gadsden, Alabama, May 13. He was born at Cedar Bluff, Ala., Jan. 20, 1854; studied law at Vanderbilt University and was admitted to the bar in 1876, practicing at Gadsden, Ala. He was a member of the Alabama House of Representatives in 1884 and served in Congress from 1899 to 1919. He was chairman of the committee on immigration and naturalization. In politics he was a Democrat.

BUTTER. See DAIRYING.

CADMAN, CHARLES WAKEFIELD. See MUSIC, OPERA.

CALCAÑO, JULIO. Venezuelan writer. See SPANISH LITERATURE.

CALENDAR. See ASTRONOMY.

CALIFORNIA. POPULATION. The population of the State in 1910 was 2,377,549, and on July 1, 1919, it was estimated to be 3,209,792, a gain during the year of 90,000.

AGRICULTURE. The following table is compiled from a report of the Federal Department of Agriculture:

Crop	Year	Acreage	Prod. Bu.	Value
Corn	1919	87,000	2,871,000	\$5,139,000
	1918	85,000	2,975,000	5,742,000
Oats	1919	175,000	5,250,000	5,040,000
	1918	175,000	5,600,000	5,264,000
Wheat	1919	990,000	16,335,000	33,323,000
	1918	506,000	7,590,000	16,394,000
Barley	1919	1,000,000	30,000,000	42,300,000
	1918	1,320,000	34,320,000	39,468,000
Hay	1919	2,352,000	4,257,000	73,220,000
	1918	2,376,000	4,297,000	59,400,000
Beans	1919	395,000	4,464,000	19,418,000
	1918	592,000	8,584,000	46,354,000
Potatoes	1919	88,000	11,352,000	19,412,000
	1918	90,000	12,870,000	15,444,000

Crop	Year	Acres	Prod. Bu.	Value
Cotton	1919	167,000	b 102,000	21,980,000
	1918	178,000	b 67,000	10,103,000
Rice	1919	142,000	7,881,000	21,042,000
	1918	112,000	7,836,000	18,988,000
Hops	1919	11,000	c 17,875,000	13,764,000
	1918	11,000	c 12,500,000	2,500,000

a Tons. b Bales. c Pounds.

TRANSPORTATION. Two railroad companies constructed in 1919 a total of 69.29 miles of new first track. See CHILD LABOR.

LEGISLATION OF IMPORTANCE, 1919 LEGISLATURE: \$1,000,000 appropriation for extension of State land settlement project, including preferential selection of farms by returned service men; \$10,000,000 bond issue for the same purpose, to be voted on in November, 1920; \$40,000,000 highway bond issue, submitted to vote and approved overwhelmingly July 1, 1919; compulsory part-time education law; industrial farm for the rehabilitation of fallen women; vocational reeducation of workmen disabled in industry; raising age limit for compulsory school attendance from 15 to 16 years and the age limit in the child labor law from 15 to 16 years; ratification of the federal prohibition amendment and enactment of State enforcement law; creation of a Department of Agriculture by the consolidation of numerous boards and commissions. An effort was made to introduce anti-alien legislation intended to prohibit leasing of land to Japanese and to make illegal "picture bride" marriages among Japanese. Secretary of State Lansing, who was asked by Senate officials to express his opinion as to the wisdom of reviving the anti-alien agitation, requested that no action be taken. The Senate, under the constitutional rule which prohibits the introduction of bills in the second part of the legislative session, refused to grant permission for the introduction of this legislation. A constitutional amendment was passed, to be voted on in November, 1920, providing for calling a constitutional convention. The general appropriation bill amounted to \$20,596,388 and special appropriations totalled \$9,970,920.02.

FINANCE. According to the report of the State controller, total receipts during the fiscal year 1918-19 were \$50,132,900.37 and total disbursements for the same period were \$50,681,433.48. Cash on hand July 1, 1918, was \$13,865,546.81; on July 1, 1919, was \$14,140,661.17. The assessed value of taxable property on July 1, 1919, was \$4,023,009,588. The net bonded debt on July 1, 1919, was \$44,138,500.

STATE INSTITUTIONS. The total number of inmates in State institutions on Nov. 30, 1919, was 15,169, an increase of 193 over 1918. This was distributed as follows: Industrial Home for the Adult Blind, 139; State reform schools, 734; State hospitals for the insane, 10,124 (85 inebriates); State home for feeble-minded, 1301; State prisons, 2871.

OFFICERS. Governor, William D. Stephens; Lieutenant-Governor, C. C. Young; Secretary of State, Frank C. Jordan; Controller, John S. Chambers; Treasurer, Friend Wm. Richardson; Attorney General, U. S. Webb; Surveyor General, W. S. Kingsbury; Adjutant General, J. J. Borree; Superintendent of Public Instruction, Will C. Wood; Commissioner of Corporations, E. C. Bellows; Librarian, Milton J. Ferguson; Legislative Counsel, Arthur P. Will; President

Railroad Commission, Edwin O. Edgerton; Chairman Industrial Accident Commission, A. J. Pillsbury.

JUDICIARY. Supreme Court: Chief Justice, Frank M. Angellotti; Associate Justices, Lucien Shaw, Henry A. Melvin, William P. Lawlor, Curtis D. Wilbur, Thomas J. Lennon, Warren Olney, Jr.; Clerk, B. Grant Taylor. See AGRICULTURAL EXPERIMENT STATIONS; CHILD LABOR; COTTON; MINERAL PRODUCTION; WORKMEN'S COMPENSATION; OLD AGE PENSIONS.

CALIFORNIA, UNIVERSITY OF. A co-educational State institution, founded in 1860 at Berkeley, Cal. The enrollment for the summer session of 1919 was 4322. The enrollment for the fall term was as follows: College of Agriculture, men 547, women 51; commerce, men 591, women 205; mechanics, men 589, women 2; mining, men 230; civil engineering, men 234; chemistry, men 264, women 20; letters and sciences, men 2216, women 3646; medicine, men 177, women 30; dentistry, men 226, women 19; pharmacy, men 87, women 20; law, men 48, women 4; jurisprudence, men 198, women 31; grand totals, men 5276, women 4002. The teaching staff numbers 696, exclusive of assistants not engaged in instruction. The university library contains 458,000 bound volumes and 185,000 pamphlets. David Prescott Barrows, Ph.D., Professor of Political Science at the university, was elected late in the year to succeed to the office of president, vacated by Dr. Benjamin Ide Wheeler in the previous June.

CALL, EDWARD PAYSON. Newspaper publisher, died at Larchmont, N. Y., May 19. He was born at West Cambridge, Mass., Nov. 2, 1855. He was on the Philadelphia Press from 1893 to 1897, and published the New York Evening Post, 1897-1902; Mail and Express, 1902-04; Commercial, 1904-07; and was assistant business manager of the New York Times, 1909-13; and business manager of the Journal of Commerce from 1913 to the time of his death.

CALTHROP, Sir Guy. British Coal Controller, died in London, February 23. He was well known as a railway manager before he was appointed controller of the coal mines during the war. He was born in 1870, entered the service of a railway company in 1886 and had risen in 1902 to the position of general superintendent of the Caledonian Railway, of which he was afterwards general manager. In 1916 the government took possession of the South Wales coal field and soon afterwards State control was extended to the coal-mining industry in general. This resulted in the creation of a new department and Sir Guy Calthrop was put in charge of it under the title of Controller of Coal Mines. Under him a fair system of distribution was organized and the method of fuel rationing, employed to the close of the war, was introduced.

CAMBODIA. A French protectorate in Farther India, a native kingdom forming part of French Indo-China. The territory of Cambodia was increased 7000 square miles by treaty of Mar. 23, 1907, providing for boundary changes. The figures for area and population are included with those of other portions of French Indo-China. (see the article FRENCH INDO-CHINA). The capital is Pnom Penh, with a population estimated at over 60,000. The foreign trade is mostly routed through Saigon in Cochin-China. The main products are rice, betel, tobacco, spices,

etc. A large portion of the country is wooded; there is also some cattle raising.

CAMBON, JULES. French representative at the Paris Peace Conference. He was for many years French ambassador in London. His early diplomatic experience was gained in South America and his last diplomatic position was that of ambassador in Berlin, where he saw the preparations for war and kept his government fully informed as to conditions in Germany. He was called into the Briand war cabinet when it was reconstructed, and was then appointed general secretary to the foreign office. From that date he was entrusted with various important tasks and was, especially the adviser of the foreign office in matters relating to Franco-American affairs, and to Alsace-Lorraine.

CAMEROON. See KAMERUN.

CAMPANINI, CLEOFONTE. Italian musical conductor, and operatic manager, died in Chicago, Ill., December 19. He was born at Parma, Italy, Sept. 1, 1860, and studied at the Royal Conservatory there. In his youth he was assistant conductor in the first season of Italian opera in the Metropolitan Opera House in New York in 1883. He returned to Europe and his reputation spread rapidly throughout the world. He was the principal conductor of opera at the Covent Garden, London, 1897-1906. From that time his activities were in the United States where he was director of the Manhattan Opera Company, New York, 1906-1909, and of the Chicago and Philadelphia Opera Companies, 1910-13. After 1913 he became general manager of the Chicago Opera Company. He was accounted among the greatest of the world's conductors, and the most famous pieces of the time were produced under him, including *Salome*, *Pelleas and Melisande*, *Samson and Delilah* and *Cleopatra*.

CAMPFIRE GIRLS OF AMERICA. An association founded by Dr. and Mrs. Luther H. Gulick in 1912 for the general purpose of promoting good health by outdoor life, encouraging economy, and effecting social improvement. It is an organized effort to find romance, beauty, and adventure in every-day life. It seeks to make the homely task contribute to the joy of every-day living. Camping-out is a regular feature of the programme each year. A group, consisting of from six to 20 girls, with a Guardian, is called a Camp Fire. The Guardian must be at least 18. Each member pays 50 cents annual dues which goes toward the support of the National Headquarters at 31 E. 17th St., New York City. Each Camp Fire and each Camp Fire Girl has a name and a symbol. Ceremonial meetings are held once a month. The Camp Fire law is as follows: Seek beauty, give service, pursue knowledge, be trustworthy, hold on to health, glorify work, and be happy. Health is considered a sacred thing. During the past year more than 40,000 girls carried out this point of the law by camping in the open for one or more weeks. The second point of the law, "Give Service," was followed by 70,448 girls who maintained gardens, and by 83,356 who contributed money and cooperation with the Red Cross. The following figures exemplify the work of the Camp Fire Girls during the war: over \$1,000,000 of Liberty Bonds were sold in the Third Liberty Loan; \$695,500 Thrift Stamps were purchased; \$903,000 Thrift Stamps were sold; 55,000 girls helped in the support of

French and Belgian orphans, or specially cared for children in poor families in 1918; 37,000 cared for little children, thus freeing older women for other work, 70,000 helped maintain gardens; 68,000 girls earned honors by conservation of food; and in many other ways the Camp Fire Girls aided the government and the various relief organizations.

At a meeting of the Department of Superintendence of the National Education Association, Chicago, Ill., Feb. 24, 1919, a conference with the Camp Fire Girls was held. The Camp Fire movement was thoroughly endorsed, several speeches being made on the subject by prominent educators. An effort is being made to introduce courses in Camp Fire into various colleges and normal schools. The Michigan State Normal College at Ypsilanti has conducted a course of this kind for several years, and in July, 1919, conducted a camping trip to act as a sort of laboratory for the work studied. The New York University Summer School also conducted a thorough course in Camp Fire Training in 1919.

In their Reconstruction Programme, endorsed by President Wilson, they pledge themselves to conserve health and become sturdy and rugged, to create wealth for self and country by saving, and to reestablish the old-fashioned womanhood by making the home more beautiful and happy.

Camp Fire membership consists of 7384 camps and 100,747 members throughout the world: United States, Alaska, Philippine Islands, Hawaiian Islands, Canada, Canal Zone, Porto Rico, South America, England, Scotland, Africa, China, Japan, Korea, and Australia. The officers for 1919 were as follows: Honorary president, Woodrow Wilson; honorary vice-president, William Howard Taft; acting president, Robert Garrett; treasurer, John A. Potter; secretary, Lester F. Scott.

CAMPBOR, ALEXANDER PRIESTLY. Methodist Episcopal Bishop, died at South Orange, N. J., December 10. From 1897 to 1907 he was president of the College of West Africa in Monrovia, Liberia. He was born in Jefferson Parish, Louisiana, Aug. 9, 1865, studied at the Leeland University 1879-80 and New Orleans University 1880-89; the Gammon Theological Seminary 1893-95; and other institutions. He was professor of mathematics at New Orleans August, 1889-93, served as pastor in parishes in Pennsylvania and New Jersey, and after completing his 10 years' work in Liberia above mentioned was president of the Central Alabama Institute at Birmingham, 1908-16. From 1916 to the time of his death he was Methodist Episcopal Bishop for Africa. He went to Africa on a visit and returned early in 1919 to attend the centennial of his church at Columbus, Ohio.

CANADA, DOMINION OF. A self-governing dependency of Great Britain, lying between the United States on the south and the Arctic Ocean on the north, and extending from the Atlantic to the Pacific. Capital, Ottawa.

AREA AND POPULATION. A total area of 3,729,665 square miles is divided into nine provinces and two territories with a deduction of 125,755 square miles of water area, exclusive of Hudson Bay and other tidal waters. The total population by the last census, June 1, 1911 was 7,206,643, which has reached, according to the estimate of 1917, 8,361,000, with the

inclusion of an Eskimo population of 3300, and an Indian, of 106,000. For details by provinces and territories see 1917 YEAR BOOK, also for distribution of the population by race, color, and sex, and the number of births, deaths, and marriages. The number of immigrants in the year ending Nov. 30, 1919, was 114,768, of whom 54,641 were from the British Isles and 52,141 from the United States. An important change went into effect in 1919 in respect to the rules governing immigration, a law having been passed to provide for a more careful selection of immigrants and bestowing upon the authorities enlarged powers for the deportation of undesirable immigrants.

AGRICULTURE. In 1917, 42,602,000 acres were under field crops; their total value for the year of 1917 was estimated at \$1,145,000,000. The following are the provisional estimates for 1918, according to the *Statesman's Year Book*:

1918	Wheat		Barley	
	Acres	Bushels	Acres	Bushels
Ontario..	714,039	14,066,000	660,404	28,114,000
Quebec..	365,670	6,765,000	189,202	4,635,000
N. S....	32,737	778,000	11,571	386,000
N. B....	49,453	1,051,000	6,801	178,000
Manitoba..	2,983,702	55,948,000	1,102,965	31,986,000
P. E. I....	30,352	698,000	5,672	187,000
B. Col....	36,200	782,000	7,927	204,000
Alberta...	3,892,489	23,862,000	470,073	8,461,000
Sask.....	9,249,260	106,866,000	699,296	14,461,000

Total
Can. 17,353,902 210,316,000 3,153,711 88,262,000

1918	Oats		Potatoes	
	Acres	Bushels	Acres	Bushels
Ontario..	2,924,468	116,979,000	166,203	20,443,000
Quebec..	1,932,720	56,732,000	264,871	38,936,000
N. S....	145,036	5,439,000	51,250	9,943,000
N. B....	224,442	7,856,000	57,272	9,078,000
Manitoba..	1,714,894	68,451,000	45,000	8,325,000
P. E. I....	169,729	7,171,000	31,543	5,362,000
B. Col....	39,000	1,443,000	15,013	3,423,000
Alberta...	2,651,548	62,974,000	44,247	3,119,000
Sask.....	4,988,499	134,689,000	59,798	6,951,000

Total
Can. 14,790,336 456,784,000 735,192 105,580,000

1918	Flax		Hay and Clover	
	Acres	Bushels	Acres	Tons
Ontario....	15,925	187,000	3,470,036	4,511,000
Quebec.....	7,357	77,000	4,538,266	6,800,000
N. S.....	.....	.....	605,464	787,000
N. B.....	.....	.....	740,637	1,111,000
Manitoba...	107,961	1,458,000	74,000	74,000
P. E. I.....	.....	.....	222,691	334,000
Brit. Col....	.....	.....	114,414	217,000
Alberta...	95,920	480,000	469,000	899,000
Saskatchewan...	840,957	5,466,000	315,117	362,000

Total
Canada. 1,068,120 10,544,625 14,595,000

According to a bulletin issued by the Dominion Bureau of Statistics the total yield of wheat for Canada in 1918 is returned as 189,075,350 bushels from 17,353,000 sown acres, an average yield per acre of 10.8 bushels. In 1917 the corresponding figures were 233,742,850 bushels from 14,755,850 acres, a yield per acre of 15.7 bushels. The yield of oats in 1918 was 426,312,500 bushels from 14,790,336 acres, an average of 28.8 bushels per acre, as compared with 403,009,800 bushels from 13,313,400 acres in 1917, an average of 30.2 bushels per acre. Of the remaining grain crops the total yields in 1918, with the figures for 1917 in parentheses, were, in bushels, as follows: Barley, 77,287,240 (55,057,750); rye, 8,504,400 (3,857,200); peas, 3,099,400 (3,026,340); beans, 3,563,380 (1,274,000); buckwheat, 11,375,500 (7,149,400); flax,

6,055,200, (5,934,900); mixed grains, 35,662,300 (16,157,080); corn for husking, 14,214,200 (7,762,700); potatoes, 104,364,200 (79,892,000); turnips, etc., 122,699,600 (63,451,000); hay and clover, 14,772,300 tons (13,684,700); fodder corn, 4,787,500 tons (2,690,370); sugar beets, 180,000 tons (117,600); alfalfa, 446,400 tons (262,400).

The average price per bushel of grain crops in 1918 according to the findings of the crop correspondents of the Dominion Bureau of Statistics was: Fall wheat, \$2.08 as against the same price in 1917; spring wheat \$2.02 as against \$1.93; oats \$0.78 as against \$0.69; barley \$1.00 as against \$1.08; rye \$1.49 as against \$1.62; peas \$2.54 against \$3.54; beans \$5.41 as against \$7.45; buckwheat \$1.58 against \$1.46; mixed grains \$1.14 against \$1.16; flax \$3.13 against \$2.65; corn for husking \$1.75 against \$1.84. The price for potatoes was \$0.98 as compared with \$1 in 1917. Hay and clover have the record price of \$16.25 per ton as compared with \$10.33 in 1917. For alfalfa the price was \$17.84, also the highest on record, as against \$11.59 in 1917. The price of fodder corn was \$6.15 per ton as against \$5.14; and of sugar beets \$10.25 against \$6.75.

The total farm values for 1918, of all the principal field crops were given as follows, the corresponding values for 1917 being in parentheses: Wheat \$381,677,700 (\$453,038,600); oats \$331,357,400 (\$277,065,300); barley \$77,378,670 (\$59,654,400); rye \$12,728,600 (\$6,267,200); peas \$7,873,100 (\$10,724,100); beans, \$19,283,900 (\$9,493,400); buckwheat \$18,018,100 (\$10,443,400); mixed grains \$40,726,500 (\$18,801,750); flax \$18,951,000 (\$15,737,000); corn for husking, \$24,902,800 (\$14,307,200); potatoes \$102,235,300 (\$80,808,400); turnips, etc., \$52,252,000 (\$29,253,000); hay and clover \$241,277,300 (\$141,376,700); fodder corn \$29,439,100 (\$13,834,900); sugar beets, \$1,845,000 (\$793,800); alfalfa \$7,963,500 (\$3,041,300).

The total value of the field crops of Canada in 1918 was estimated at \$1,367,909,970, which was the highest on record, and compares with \$1,144,636,450 in 1917. The total includes grain crops, \$932,897,770 (\$875,532,350); potatoes and sugar beets, \$104,080,300 (\$81,598,200); and fodder crops, \$330,931,900 (\$187,505,900).

In the three Prairie Provinces—Manitoba, Saskatchewan, and Alberta—the production of wheat in 1918 was estimated at 164,436,100 bushels as compared with 211,953,100 bushels in 1917; of oats, 222,049,500, as compared with 254,877,200; of barley, 47,607,400, as compared with 40,384,100; of flax, 5,776,000 bushels, as compared with 5,835,900 bushels. The estimated wheat production of Manitoba was 48,191,100 bushels from 2,963,702 acres, in Saskatchewan, 92,493,000 bushels from 9,249,260 acres, and in Alberta, 23,752,000 bushels from 3,892,489 acres. See AGRICULTURE.

FOREST PRODUCTS. The area of land bearing timber of commercial value is estimated at 200,000,000 to 300,000,000 acres divided among the provinces as follows: Quebec, 100,000,000; Ontario, 70,000,000; British Columbia, 50,000,000; Alberta, Manitoba, and Saskatchewan, 11,000,000; New Brunswick, 9,000,000; and Nova Scotia, 5,000,000.

No official statistics of lumbering were available for 1918, but from information published by the *Canada Lumberman* it would appear that production during 1918 was less than in the

previous year. In the Georgian Bay and Northern Ontario districts the production of lumber in 1918 shows a decrease of 107,300,202 feet board measure as compared with the production in 1917. The total cut according to the *Canada Lumberman* amounted to 514,118,455 feet board measure, as compared with 621,418,657 feet board measure in 1917. The decrease in the cut is attributed chiefly to unsatisfactory labor conditions. The high cost of production, absence of export, and frequent embargoes upon the railways were also deterrent factors. A contributing agency was the sudden break-up of winter in 1918, which left in the forests many logs which had not been hauled to the banks of the streams. The production of laths in the district was 109,441,720 pieces, as compared with 226,283,760 in 1917, a drop of 116,842,040 pieces. The shingle production was 11,386,750 pieces as compared with 16,240,250 in 1917, a shrinkage of 4,853,500 pieces.

Production in the Ottawa Valley declined by 78,352,987 feet as compared with 1917; lath was 34,172,250 pieces less, and shingles dropped 16,510,000 pieces. The total lumber output here in 1918 was 349,978,000 feet, compared with 426,330,987 in 1917; lath 40,294,000 in 1918, compared with 74,466,250 pieces in 1917; shingles, 16,815,000 compared with 33,325,000 pieces in 1917.

MINERALS. According to a preliminary report issued by the Department of Mines the total value of the metal and mineral production in 1918 was \$210,204,970. Compared with the production of 1917, valued at \$189,646,821, an increase of \$20,558,149, or 10.8 per cent, is shown.

This table indicates the fluctuations in quantity and value of the principal minerals in 1918 as compared with 1917:

greatly increased. More than half the total increase was due to the higher prices obtained for coal, and a considerable proportion of the remainder of the increase to higher prices of silver, cobalt, and asbestos, though each of these products except silver was also produced in greater quantity than in the previous year. The metal output in 1918 was valued at \$113,563,111, an increase of \$7,107,964, or 6.6 per cent over 1917. The total value of the non-metallic production, including clay and quarry products, in 1918 was \$96,641,859, as compared with \$83,191,674 in 1917, showing an increase of \$13,450,185, or 16 per cent.

MANUFACTURES. During the year the Dominion Bureau of Statistics completed its census of manufactures for the year 1917 and has issued returns that cover 34,380 establishments, and show a remarkable development when compared with the year 1915, as shown by the following table:

Items	1917	Increase over 1915
Capital invested	\$2,772,517,680	\$778,414,408
Employees on salaries...	a 73,598	a 20,915
Salaries paid	93,983,605	35,675,213
Employees on wages, including piece work....	a 619,473	a 157,273
Wages paid	457,245,456	227,789,246
Cost of materials	1,602,820,631	800,686,769
Value of products.....	8,015,506,869	1,608,369,729

a Number.

The gross value of goods manufactured in Canada in 1917 amounted to \$3,015,506,869 and the cost of materials was \$1,602,820,631, leaving a net value of \$1,412,686,238 or \$5,549,098 more than the gross value of production in 1915.

The amount invested in leading industries was: Electric light and power, \$356,004,168;

Principal products	Increase (+) or decrease (—) in quantity	Per cent	Increase (+) or decrease (—) in value	Per cent
METALLIC				
Cobalt	+ 267,972	24.8	+ \$1,641,545	95.0
Copper	+ 9,188,497	8.4	+ 524,539	1.8
Gold	— 28,305	8.8	— 585,117	3.8
Pig iron from Canadian ore	+ 1,422	3.1	+ 435,920	56.7
Lead	+ 11,269,979	34.6	+ 427,759	11.8
Molybdenite	+ 89,145	30.8	+ 145,823	50.5
Nickel	+ 9,745,754	11.8	+ 8,098,302	9.2
Silver	— 936,667	4.2	+ 2,505,645	13.8
Zinc	+ 8,994,926	13.4	+ 105,803	4.0
NONMETALLIC				
Asbestos and asbestic	+ 4,415	2.9	+ 1,740,396	24.1
Coal	+ 932,454	6.6	+ 12,552,840	29.1
Graphite	— 663	17.9	— 132,838	33.0
Gypsum	— 184,045	54.7	— 58,978	6.7
Magnesite	— 18,725	32.2	+ 288,490	39.6
Mica .....	.....	....	— 90,476	25.2

During the three years down to the close of 1918 greatly enhanced prices of metals and mineral products contributed in large measure toward increasing the total value of the mineral production, but out of 45 items included in the mineral record, 18 reached their highest production in actual quantity during 1918 or 1917. The production of cement, clay products, stone quarries, and other materials of construction, compared with maximum production before the war, was reduced almost one-half because of the enforced cessation of building activity, whereas the output of metals and of various nonmetals and fuels, most of which entered directly or indirectly into the requirements of the war was

pulp and paper, \$186,787,405; log products, \$149,266,019; cars and car work, \$98,274,585; steel furnaces and rolling mills, \$91,894,777; flour and grist mill products, \$72,573,982; agricultural implements, \$70,493,801; foundry and machine shop products, \$69,915,032; car repair shops, \$68,763,298; slaughtering and meat products, \$68,145,347. Canada has nearly a monopoly of the newsprint paper used in the United States, supplying over 56 per cent used, besides supplying her domestic demand entirely. After August, 1914, many new industries developed in Canada as a result of war conditions. Among them may be mentioned: Margarine, candied peel, phonograph records, steel

for motor-car frames, galvanized sheets, beet-slicer knives, steel barrels, ribbed hosiery, knitting machinery, equipment for electric furnaces, semirotable double-acting pumps, steel plates, gear hoppers, machine tools, alloys, a considerable range of chemical products, machinery of various kinds, collapsible baskets, electric bulbs, semaphore lenses, and ruby lantern globes.

COMMERCE. Canada's foreign trade in 1918 showed a decrease over that of the previous year in imports and exports. Total imports in 1918 were worth \$906,954,900 as compared with \$1,005,071,716 in 1917, a decrease of \$98,116,816 or 9.8 per cent. Total exports for 1918

Imports and exports		12 months ending Sept. 30—	
		1918	1919
Exports—			
Canadian	1,358,419,580	1,201,801,887	
Foreign	42,761,192	58,511,284	
Total exports, merchandise	\$1,401,180,772	\$1,260,312,671	

The United States supplied \$38,000,000 less of Canada's imports in the year ended Sept. 30, 1919, than it did in the preceding 12 months, but took nearly \$13,000,000 more of Canada's merchandise exports, as the following table shows:

Countries	1918	Imports from		Exports to	
		1919	1918	1919	1918
United Kingdom	\$70,598,856	\$79,028,483	\$712,670,484	\$540,378,091	
Australia	2,767,072	4,215,120	11,844,103	12,510,382	
British East Indies	16,775,873	12,800,718	2,322,708	5,448,797	
British Guiana	5,411,468	9,039,973	2,360,770	2,630,722	
British South Africa	996,140	1,072,898	8,205,301	9,918,777	
British West Indies	7,639,737	10,420,957	8,451,395	10,358,556	
Hongkong	2,291,770	1,611,708	820,026	1,126,718	
Newfoundland	3,164,166	2,456,324	11,492,275	13,160,904	
New Zealand	6,375,862	5,329,798	4,900,966	6,448,688	
Other British Empire	1,855,559	748,584	2,109,256	6,648,428	
Total, British Empire	117,876,508	125,714,553	765,177,284	608,625,013	
United States	739,468,574	701,087,586	420,865,838	433,337,935	
Argentina	1,060,383	1,609,973	1,978,595	5,945,084	
Brazil	771,574	1,478,452	3,911,636	1,871,128	
China	1,767,702	1,322,182	3,021,096	2,565,604	
Cuba	1,790,601	7,542,830	4,042,994	6,045,767	
France	4,112,771	4,848,857	131,460,692	73,688,731	
Italy	650,998	495,802	6,474,042	19,664,534	
Japan	13,480,013	12,500,842	8,642,980	9,542,377	
Netherlands	689,912	929,461	1,644,649	2,264,927	
Other foreign countries	16,887,858	28,604,555	11,204,824	38,250,287	
Total, foreign countries	780,675,381	760,419,490	593,242,296	593,176,874	
Grand total	\$898,551,884	\$886,134,043	\$1,358,419,580	\$1,201,801,887	

were \$1,229,708,244, as compared with \$1,547,340,855 the year previous, a difference of \$317,632,611 or 20.5 per cent. There was, however, a substantial balance of trade in Canada's favor, exports amounting to \$322,753,344 over imports, or 35.5 per cent.

The following statement gives a summary of Canada's trade for the calendar year 1918 compared with 1917:

Items	1917	1918
Imports for Consumption—		
Dutiable goods.....	\$557,636,509	\$511,125,417
Free goods.....	447,435,207	395,829,483
Total imports....	1,005,071,716	906,954,900
Duty collected.....	167,041,380	154,849,472
Exports—		
Mineral products....	77,389,963	75,708,425
Fishery products....	28,323,877	33,577,772
Forest products....	52,280,875	65,436,204
Animal products....	170,561,884	176,407,332
Agricultural prod....	581,300,259	320,524,859
Manufactures	682,431,692	552,683,692
Miscellaneous	5,052,305	5,869,960
Total exports....	\$1,547,340,855	\$1,229,708,244

The trade of Canada for the 12 months ending Sept. 30, 1919, as compared with the corresponding period of 1917-18 is as follows:

Imports and exports		12 months ending Sept. 30—	
		1918	1919
Imports for Consumption—			
Dutiable goods.....	\$514,219,510	\$550,516,656	
Free goods.....	384,332,374	335,617,887	
Total imports, merchandise	898,551,884	886,134,043	
Duty collected.....	154,869,499	158,435,970	

The Canadian Trade Commission, to which was transferred by order-in-council all functions, powers, and duties formerly vested in the War Trade Board, approved a general license permitting the importation of all commodities restricted from importation by the War Trade Board during the war, except foodstuffs. The trade commission has also approved regulations by which collectors of customs at ports of exit may, by endorsement of the usual shipper's export entries, license shipments of all commodities except the following: Gold coin, gold bullion, fine gold bars, Canadian silver coin, silver bullion, fine silver bars, cinchona bark and products, quinine and its compounds, cocaine, opium, opium gum and its products, wheat, wheat flour and farina, butter, cheese, sugar, sirup and molasses, mill screenings and screenings of grain, and canned salmon. For the foregoing individual licenses are required to all destinations.

RAILWAYS. In 1919 433.31 miles of new first track and 0.15 miles of new second track, or a total of 442.46 miles, were completed and put in service in the Dominion of Canada. This amounts to three times as much as that of 1918—135.08 miles of first track and 4.28 miles of second track, a total of 139.36 miles—and was greater than for any year since 1915, though of course not to be compared with 1913 when almost 3000 miles was built. The new construction in 1919 was by six different companies, the Alberta and Great Waterways building in Alberta 8.1 miles of first track; the Canadian National 148.05 miles of first track in Alberta, Saskatchewan and Manitoba, and 6.75 miles of second track in Alberta; the Kettle Valley 5.75 miles of first track in British Columbia; the

Pacific Great Eastern 113 miles of first track in British Columbia, and the St. John and Quebec 70 miles of first track in New Brunswick, and 2.40 miles of second track. On the Grand Trunk Pacific the diversion project at Firdale, Manitoba, where temporary trestles were being replaced with permanent openings and roadway at a cost of \$420,000, was 67 per cent complete. At Toronto the new terminal station was making progress.

The most important railway event of 1919 was the taking over of the Grand Trunk by the government following the policy of government ownership or operation, or as it was termed nationalization, which had been developing in Canada for some 10 years previously. This step was necessary in the government's plan of railway nationalization and unification both to bring the province of Ontario into communication with the Grand Trunk Pacific, whose operation had been unproductive, and which with the Grand Trunk Pacific Branch Lines had passed into the hands of a receiver, and to relieve the Grand Trunk which with the government was a guarantor of the Grand Trunk Pacific.

The taking over of the Grand Trunk in November, 1919, thus brought into the hands of the Canadian government what was consolidated into the largest railway system on the American continent, and a government operated mileage comparable with, though less in extent, those of Germany, India and Austria-Hungary. These lines were under the control of the Canadian National Railways Company, a government corporation, which was in the unique position of controlling some 1900 miles of line within the territorial limits of the United States. The mileage in 1919 of the various lines which were to be operated as a single system was as follows:

Intercolonial	1,592.35
Prince Edward Island	278.81
Transcontinental	2,002.92
Canadian Northern	9,479.17
Grand Trunk Pacific	1,794.07
G. T. P. branch lines	1,086.79
Grand Trunk in Canada	3,578.80
Grand Trunk in United States	1,665.00
Lines in maritime provinces	485.00
Total	21,912.91

The problems of this vast combination were considered not only interesting but severe. In 1918 every one of these roads had a deficit which in the aggregate was said to amount to over \$26,000,000, considering merely income and expense. Furthermore the new government system inevitably must compete with the Canadian Pacific, which with a mileage of approximately 13,000 at the end of 1919 was the only remaining privately owned line in Canada. This road had a very small funded debt and the government had no direct financial interest in it. In addition it was in excellent physical condition. There was considerable difference of opinion as to the advantage or effects of such competition, but it was thought that a practical comparison between two large trans-continental systems, one under private and the other under government operation would go a long way towards settling the merits of the two methods. See CANALS.

TROOP MOVEMENTS ON CANADIAN LINES. During the year, Maj.-Gen. J. Lyons Biggar, quartermaster general of the Canadian army, pre-

sented statistics regarding "the admirable services" of the railway and steamship companies in the movement of troops during the war. The following is the number of troops which were carried by the various railways:

CANADIAN PACIFIC		
	Mobilization	Demobilization
Canadian troops	158,826	175,567
United States troops	54,810	.....
Chinese coolies for overseas	81,530	.....
French battalion, Serbian, Montenegrin and Polish reservists	16,103	.....
Imperial troops .....	.....	9,082
Total	306,269	184,599
GRAND TRUNK		
Canadian troops	200,273	105,259
United States troops	118,180	.....
Total	318,458	105,259
CANADIAN NATIONAL		
Canadian troops	389,172	267,436
United States troops	5,843	.....
Total	345,015	267,436

The number carried by the Canadian Pacific steamships was as follows:

CANADIAN PACIFIC		
	Eastbound	Westbound
Canadian troops	121,097	80,811
United States troops	18,407	2,120
Chinese coolies	37,034	3,120
Prisoners of war	1,424	.....
Total	177,962	86,051

The following official figures were published, December 3d, showing casualties and numbers engaged in the war:

	Officers	Other ranks	Total
Killed in action and died of wounds	2,559	48,557	51,116
Accidentally killed	5	8	13
Died of disease	292	4,613	4,905
Wounded	5,349	143,510	148,859
Presumed dead	187	4,915	5,102
Missing	...	57	57
Deaths in Canada	...	2,633	2,633
	8,392	204,293	*212,685
Total prisoners of war	236	3,493	3,729
Repatriated	204	3,086	3,290
C. E. F., Siberia Forces: 4 accidentally killed, 13 died of disease, 1 wounded.			
Enlistments up to Nov. 15, 1918			†595,441
Sailings for England			418,052
Sailings to Siberia			4,214
Total that went overseas			†422,266

* Represents nearly 3 per cent of Canada's total population of 8,000,000. † Over 7 per cent of population. ‡ Five per cent of population.

FINANCE. Gold is the standard of value with a monetary unit of the dollar similar to the United States. Revenues supply a consolidated fund from which are paid the expenditures incident to the fiscal year which ends March 31. A second fund, the miscellaneous accounts, provides for loans, redemption of debt, railway administration, expenditures on capital account for public works, etc.

Detailed estimates for the year ending Mar.

31, 1919, according to the *Statesman's Year Book* were:

Services	Dollars
Public debt (including sinking funds)	78,119,502
Charges of management	518,850
Civil government	8,143,633
Administration of justice	1,552,883
Police, Dominion	146,765
Penitentiaries	991,600
Legislation	1,850,154
Arts, agriculture, and statistics	4,260,152
Quarantine	241,000
Immigration	1,135,000
Pensions	16,146,575
Superannuation	400,000
Militia and defense	4,212,600
Railways and canals (chargeable to income)	33,071,387
Mail subsidies and steamship subventions	1,906,901
Ocean and river service	1,947,800
Lighthouse and coast service	1,939,500
Scientific institutions	405,000
Marine hospitals	78,000
Steamboat inspection	79,221
Fisheries	1,035,000
Subsidies to provinces	11,389,148
Department of Mines	427,900
Indians	1,879,188
Mounted police	1,127,778
Government of Northwest Territories	8,000
Government of Yukon Territory	185,000
Dominion lands (chargeable to income)	2,581,645
Miscellaneous	6,555,531
Customs	4,565,000
Excise	1,523,768
Weights and measures, gas and electric light inspection	394,510
Adulteration of food, etc.	53,500
Railways and canals (chargeable to collection of revenue)	1,648,500
Public works (chargeable to collection of revenue)	935,900
Public works (chargeable to income)	7,595,363
Post Office	19,116,261
Trade and commerce	1,712,595
Naval service	1,530,000
Labor	75,000
Total consolidated funds	224,332,110
Railways and Canals (capital)	23,313,000
Public Works (capital)	4,456,000
Public Works, Marine Dept. (capital)	691,900
Total capital	28,460,900
Grand total	252,793,010

In the spring there was some criticism of the government's financial policy during the war as leading to an unnecessary increase in the body of the currency. Before the war the Dominion notes outstanding June 30, 1914, amounted to \$114,182,100 of which \$94,664,482 were owned by banks, and the rest were in public securities. Against this the Canadian treasury held at the same date \$92,663,575 in gold. On Feb. 28, 1919, the Dominion outstanding notes amounted to \$306,405,599 of which Canadian chartered banks held \$185,932,418, which therefore had increased about threefold their holdings since June, 1914. On \$104,000,000 of their resources the banks were now receiving no interest. The critics maintained that as the result of the situation the currency had been diluted since June, 1914, by the addition of \$98,000,000 of irredeemable currency. Various remedial measures were under discussion during the year.

According to a statement issued by the Finance Department, the net debt of the Dominion at the end of December, 1918, was \$1,330,228,898, compared with \$976,428,504 at the end of 1917, an increase of \$353,800,394, or slightly over 36 per cent. The statement given below shows the details of revenue and expenditure for the nine months of the fiscal year (April 1 to Dec. 31, 1918):

Y-B-14-5

Revenue and expenditure on account of consolidated fund		April 1-Dec. 31, 1918
Revenue:		
Customs	\$113,284,019	
Excise	22,839,887	
Post office	14,900,000	
Public works (including railways and canals)	31,089,476	
Miscellaneous	40,372,170	
Total	\$222,485,552	
Expenditure		
	\$124,539,099	
Expenditure on capital account:		
War	224,408,107	
Public works (including railways and canals)	11,830,420	
Total	\$236,238,527	

The following table shows the value of bond sales in 1918 compared with the figures for 1917:

Bonds	1917	1918
Government bonds	\$694,182,500	\$783,648,729
Municipal	26,104,067	45,805,720
Railways	22,566,666	5,000,000
Public service (including Canadian companies operating in other countries)	15,425,000	2,375,000
All other	17,067,800	5,155,000
Total	\$775,346,033	\$791,984,449

A recent table of subscriptions to the Victory Loan shows a total of \$695,389,227. Taking the Dominion as a whole, one person in every 7.08 subscribed, as compared with one in every 9.02 in 1917. The Dominion averaged \$88.91 per capita compared with \$53.37 the previous year. It has been announced that of the total subscribed the Dominion government has accepted \$660,000,000, the balance to be turned back to some of the largest subscribers.

General progress in all branches of the banking business is recorded by the figures given in the Canadian bank statement issued by the Finance Department to the end of December, 1918. The following is a summary:

Items	1917	1918
Deposits on demand	\$569,441,871	\$711,034,060
Deposits after notice	995,978,013	958,473,557
Current loans in Canada	858,533,298	1,075,640,003
Current loans elsewhere	111,581,098	119,153,924
Loans to municipalities	36,353,089	30,684,052
Call loans in Canada	71,779,020	89,120,423
Call loans elsewhere	134,483,482	150,248,322
Circulation	208,753,337	240,705,540
Total assets	\$2,323,163,783	\$2,689,835,181

DEFENSE. Under the Military Act of 1914, the Governor General exercises the power as commander-in-chief of the militia, as representative of the King. There is a Minister of Militia and Defense and a Council of Militia and Defense, which includes besides the Minister, four military members and one finance member. The division of forces in 1919 is: a fighting echelon in France of 150,000; a training echelon in England who are employed on Forestry and Railways; a recruiting and preliminary training unit in Canada. In December, 1918, demobilization commenced, with the retainment of 100,000 men in France provided for. Up to October, 1918, there had been sent overseas for active service with the Canadian Expeditionary

Force, 418,502 officers and men, and at the same time 35,013 men of all ranks were training in Canada. The plans for a Canadian navy have been in abeyance for some time; at present there are only a few fighting craft for the protection of commerce.

GOVERNMENT. The legislative power is vested in a Parliament of two Chambers, the Senate, and the House of Commons, with a term of five years. At the beginning of 1918 there were 96 Senators; these are nominated by the governor-general for life terms. The members of the House of Commons are elected by direct suffrage and numbered 235 in 1918.

The ultimate executive authority is vested in the king, exercised in his name by the governor-general and the ministry, who, in turn are responsible to the House of Commons.

The numerical representation by provinces in the Senate was: Prince Edward Island, 4; Nova Scotia, 10; New Brunswick, 10; Quebec, 24; Ontario, 24; Manitoba, 4; Saskatchewan, 4; Alberta, 4; British Columbia, 3. This was increased in 1917 to six from Prince Edward Island, Alberta, Saskatchewan, Manitoba, and British Columbia; the other provinces remaining the same. The House of Commons has a representation as follows: 82 from Ontario, 65 for Quebec, 16 from Nova Scotia, 11 for New Brunswick, 15 for Manitoba, 13 for British Columbia, 4 for Prince Edward Island, 16 for Saskatchewan, 12 for Alberta, and 1 for Yukon Territory.

In the last election, December, 1917, the constituencies were divided in the following party alignments: Unionist 151, and Opposition 81. The Ministry at the close of the year was as follows: Governor-General, the Duke of Devonshire, appointed Aug. 19, 1916; the main heads of the king's privy council: Premier Sir Robert Laird Borden; President of the Privy Council, and Minister of Health, Newton W. Rowell; Secretary of State and Minister of Mines, Martin Burrell; Minister of Trade and Commerce, Sir George E. Foster; Minister of Justice, Charles J. Doherty; Minister of Marine, Fisheries, and Naval Service, Sir Charles C. Ballantyne; Minister of Militia and Defence, Maj.-Gen. Hon. Sydney C. Mewburn; Minister of Overseas Forces, Sir Edward Kemp; Postmaster General, Pierre E. Blondin; Minister of Agriculture, Simon F. Tolmie; Minister of Public Works, Arthur L. Sifton (H. K. MacLean without portfolio); Minister of Finance, Sir Henry L. Drayton; Minister of Railways and Canals, John D. Reid; Minister of the Interior, Arthur Meighen; Minister of Immigration and Colonization, James A. Calder; Minister of Labor, Gideon Robertson; Minister of Customs and Internal Revenue, vacant; Minister of Soldiers' Civil Reestablishment, Sir James Loughheed.

LEADERSHIP OF THE LIBERALS. After the death of Sir Wilfrid Laurier (q.v.), it was announced on February 24th, that his temporary successor as leader of the opposition in the House was Mr. Daniel D. Mackenzie, member for Cape Breton since 1901; and while it seemed not unlikely that he would remain the permanent leader, there was much speculation as to the permanent choice. Among others mentioned were Messrs. W. S. Fielding, W. L. Mackenzie King, George P. Graham, W. M. Martin, and A. B. Hudson, and Sir Lomer Gouin. The last-named who was Premier of Quebec and had shown much tact in

dealing with the race difficulties during the war was especially favored in certain quarters, but by many it was believed that Laurier's successor should be an English-speaking Protestant in recognition of that numerous element in the Liberal party which had been loyal for over 30 years. In the summer, opinion seemed to incline toward Mr. Mackenzie King, Minister of Labor, who had enjoyed in exceptional degree the confidence of the late leader.

ARMY RIOT. The report of a riot in the Canadian camp at Kinmel Park was published on March 7th. It was said to have arisen chiefly from the discontent of the men at the delay in getting home, which was aggravated by the fact that the sailing of several boats had recently been cancelled. Some of the rioters raised the red flag, but the Bolshevik element was described as unimportant, the Reds being of foreign birth. Five of the men were killed and 23 injured.

THE SITUATION IN QUEBEC. The animosities of war time (see preceding YEAR BOOK) continued to some degree and conditions during the first part of the year were reported as unsatisfactory. An organ of the Nationalists declared that it would not regret to see Quebec refuse all advances and maintain for some time to come her full independence and liberty. Attacks upon the Union Government were frequent, despite the conciliatory attitude of some of the latter's spokesmen and their plea for generous treatment of Quebec.

TRANSITION TO A PEACE FOOTING. Labor troubles were incidental to the passage from peace to war in Canada as elsewhere. Early in the year the government appointed a commission representing employers and labor leaders to consider how far labor might be represented in industry. Its programme was given out as follows: First, to consider and make suggestions for securing a permanent improvement in the relations between employers and employees. Second, to recommend means for insuring that industrial conditions affecting relations between employers and employees shall be reviewed from time to time by those concerned with a view to improving conditions in the future. Third, to make a survey and classification of existing Canadian industries. Fourth, to obtain information as to the character and extent of organization already existing among employers and employees respectively. Fifth, to investigate available data as to the progress made by established joint industrial councils in Canada, Great Britain, and the United States.

In regard to the labor situation, see below. As to the restoration of trade, the government took the important measure of providing over \$100,000,000 as credits for exports to Great Britain, Greece, Rumania, and Belgium.

LABOR CONDITIONS. On April 9th a Royal Commission of seven members representing labor and capital was appointed on account of conditions arising from the high cost of living, to investigate industrial affairs and suggest means of improving the relations between the employer and the employee. The majority report was more sympathetic with the demand of labor than the report of the minority. Meanwhile a Cost of Living Commission had been appointed and had reported in favor of abolition of combinations and a more careful regulation of business by means of a national board of commerce; but

Parliament took no action on the matter. General strikes were in progress during the sessions of these commissions and in spite of the government's efforts the great strike of Winnipeg was effected. There was a considerable Bolshevik element in the working class, and there was early in the year a "One Big Union" movement in the West, like that in Australia (q.v.), but it was opposed by the officers of the Trades and Labor Congress and by the conservative unionists as a whole. It was strong, however, in parts of the Far West and had a good many adherents in Toronto.

THE STRIKE IN WINNIPEG. At the beginning of June industrial conditions were threatened by one of the most serious strikes of recent years. It occurred in Winnipeg, the metropolis of western Canada, and originated in a dispute between the union of metal works and the local iron foundries. The majority of the latter were uncompromising opponents of unionism, and refused to deal with any representative of the metal workers' union or to recognize the principle of collective bargaining, though they were ready to meet and negotiate with their individual workmen. Attempts at arbitration failed and upon the declaration of the strike the whole working class (95 unions in all) went on strike sympathetically. Firemen, police, postal employees, telegraph and telephone operators, etc., joined in the revolt. As a result the city was practically cut off from the rest of the world, and as it was a commercial centre for all of western Canada, the consequences were serious. The war veterans' association in Winnipeg openly expressed sympathy with the strikers and when a demand was made upon the returned soldiers to join the militia, there was practically no response. The proposal to declare martial law was rejected as certain to make matters worse and perhaps to result in a strike throughout the entire country. The labor element in Canada, though conservative before the war, had rapidly developed radical tendencies, and comprised an increasing element that favored direct action. The control of Winnipeg passed completely into the hands of the strikers, and the government was under the direction of a workmen's Soviet. Alarm among all business classes in Canada and elsewhere was expressed over what was declared to be a manifestation of Bolshevism. See **ARBITRATION AND CONCILIATION, FINANCIAL REVIEW, INDUSTRIAL WORKERS OF THE WORLD, LABOR LEGISLATION, MINIMUM WAGE, STRIKES AND LOCKOUTS, TAXATION, TRADE UNIONS, UNEMPLOYMENT, WAR FINANCE.**

CANALS. Discussion rather than construction characterized the inland waterway situation the world over. It was realized that rail transportation in many countries required at least to be supplemented, while mounting cost seemed to suggest that water borne traffic would be more economical in many localities. Particularly where terminals immediately accessible were available the idea of water transportation was beginning to appeal with more force, and it was further realized that the canalization of a number of rivers could be undertaken with profit.

ILLINOIS DEEP WATERWAY BILL. During the year the Governor of Illinois signed a bill for a deep waterway connecting the Chicago Drainage Canal with the Illinois River, thus linking the Great Lakes and the Mississippi, together

with a bill authorizing an issue of bonds to the amount of \$20,000,000, which had already been approved by public vote. The project must be submitted to the U. S. War Department for its approval, but the construction, maintenance and operation of the proposed waterway and its various appurtenances were placed in the hands of the Illinois State Department of Public Works and Buildings, which is empowered either to let contracts or to perform the work with its own forces. The general route of the canal is from the water-power plant of the Sanitary District of Chicago at Lockport, which is the end of the Drainage Canal, following its tailrace, the Des Plaines River and the Illinois and Michigan Canal through Joliet, and then the Des Plaines River and Illinois River to a point on the latter near Utica. If the two rivers cannot be utilized, the route may be changed to the Illinois and Michigan Canal or to new channels outside the rivers. The project calls for a bottom width of not less than 150 feet, with a depth of not less than 8 feet in earth and 10 feet in rock. For the locks, minimum dimensions of 110 x 600 feet were specified, with 14 feet of water on the mitre sills. Through Joliet it is proposed that the water level should not be higher than 40.5 below Chicago datum, or 41 feet, if certain shoals are deepened, and the width must not be less than 270 feet. Through Ottawa the level must not be higher than 120.5 below the Chicago datum.

THE CHICAGO DRAINAGE CANAL. An interesting development in connection with canal construction in the United States was the decision to prepare plans for a trunk highway about 60 miles long from Chicago to Waukegan and Joliet, Ill., along the right of way of the existing canals. This plan was to utilize large quantities of rock from the old spoil banks and contemplated the construction of an 18-foot road from Chicago to Waukegan and a 30-foot road from Chicago to Joliet, with due regard to the possibilities of motor truck traffic.

ATLANTIC TO GULF CANALS. During the year there were introduced into the House of Representatives two bills providing for canal construction between the Atlantic Ocean and the Gulf of Mexico. Bill H-R 6560 provided for a survey and estimate of cost of a sea level or lock ship canal from the mouth of the Altamaha River in Georgia through a series of rivers in Georgia to the Apalachicola River in Florida, thence down that river to its mouth in the Gulf of Mexico. A survey for a similar canal from Cumberland Sound on the Atlantic Ocean up the St. Mary's River across the States of Georgia and Florida to the Gulf of Mexico at or near St. George's Sound was the subject of Bill H-R 6558.

CHESAPEAKE AND DELAWARE CANAL. The Chesapeake and Delaware Canal, about 15 miles in length, from Delaware City on the Delaware River to Chesapeake City, Maryland, on a stream flowing into Chesapeake Bay, was formally taken over by the United States government, and the event celebrated at Delaware City on October 11th. This canal was chartered in 1799, but was acquired by the national government under an appropriation of \$2,514,290 by Congress and about \$500,000 additional for deepening and widening. It was proposed to make this a sea level canal, which would require an increased excavation of 10 feet for a considerable distance at

the summit. When enlarged, this canal will complete an inland waterway from Philadelphia to Norfolk. The improvement of this canal was investigated during the year by the Engineer Department of the U. S. army, and the sum of \$2,000,000 was asked for dredging, purchase of land for right of way and for contract work on high land elevation.

CANALS AT SAULT STE. MARIE. The fourth lock at the American Canal at Sault Ste. Marie, Michigan, was thrown open to traffic on Sept. 18, 1919. This lock, the construction of which has been discussed in previous issues of the YEAR BOOK (See INTERNATIONAL YEAR BOOK for 1914 and 1915), is a companion lock to the so-called Davis or third lock, each being 1350 by 80 feet in plan, with a depth of 24.5 over the mitre sills. The construction of the fourth lock was carried on throughout the war, though this work had to be done by force account. The lock was named the Sabin Lock, in honor of L. C. Sabin, the general manager of the canal, an engineer who has been connected with this work for many years. It is operated by electricity. The opening of the lock was not attended by special ceremonies, the various government craft in the neighborhood and a large freighter being successfully locked through. Eight minutes is the time required to raise or lower the craft in the lock a distance of 20 feet and two of the largest lake freighters can be accommodated tandem. The cost of the new lock was in excess of \$2,500,000.

Traffic in both United States and Canadian canals was considerably less in 1919 than in the previous year. The registered tonnage passing through the U. S. Canal, represented by 13,517 vessel passages was 43,803,991 tons net and through the Canadian Canal 4070 vessel passages and 6,485,099 registered tonnage net, or a total of 17,587 vessel passages and a registered tonnage of 50,089,090 in 1919, as compared with 20,610 vessel passages and a registered tonnage of 61,100,244 in 1918. The total freight passing through the canals in 1919 was 68,235,542 short tons of which 64,097,583 passed through the U. S. Canal and 4,137,959 through the Canadian Canal. Of the total freight going through the canals 52,831,205 short tons were east bound and 15,404,387 short tons were west bound. The total freight represented a decrease of 17,444,785 short tons or 20 per cent over 1918. The number of passengers, 56,992, passing through the canals represented an increase of 63 per cent over the number in 1918, 34,990, the greater number of passengers in 1919 using the Canadian Canal. There was also an increase in the amount of grain carried, 52,734,355 bushels in 1919 as compared with 30,800,621 bushels in 1918. In wheat there was a shrinkage of 7 per cent or from 122,718,146 bushels to 113,734,848 bushels and in iron ore of 23 per cent or from 60,551,296 short tons to 46,922,792 short tons. Soft coal showed a decline from 15,770,560 to 11,461,962 short tons.

The United States canal was in operation from April 10 to Dec. 15, 1919, or 250 days, while the Canadian Canal was opened April 12 and closed Dec. 15, 1919, or a season of 248 days.

CANADIAN CANALS. The construction of the Welland Canal, which had been resumed after the war, was shut down in the summer of 1919 by order of the Department of Railways in Ottawa, because of labor difficulties. The work had been interrupted during the latter part of the war, and was resumed in large measure as a

means of social relief. Demands for higher wages and labor unrest were responsible for the closing down of work. The construction of the new Welland Ship Canal was thought to present many possibilities for the Canadian inland waterways. During the year preliminary surveys were in progress by the Canadian Government, looking towards the construction of a St. Lawrence canal system capable of taking such ships as could be accommodated by the Welland Canal when completed. This water way has a mitre sill depth of 25 feet, which is greater than the depth of the St. Lawrence marginal canal. The new project was to include a new canal extending from Cardinal to Cornwall, doing away with the locks at Cardinal, Morrisburg, Fabian's Point, and Cornwall, and would involve the construction of a new canal located farther back from the river than the existing one.

EUROPEAN CANALS. In September, 1919, a Congress on Internal Waterways was held at Strassburg at which the traffic results of the Rhine navigation and improvement were considered and some remarkable figures were submitted. The proposed canal between the Rhine and the Marne was also discussed and the general policy of developing waterborne traffic which was a great urgency with the deficiencies of transportation in western Europe. The five years of war had shown the value of its inland waterways to France and their increased use did not present any striking obstacles.

As a result of such policy it was announced toward the end of 1919 that a new section of canal would be constructed to permit 300 ton ships to navigate along the entire lengths of the Rhone and the Rhine. Furthermore the canal connecting the Marne with the Rhine and the Sarre basin would be electrified throughout so as to substitute electric towage for horse towage. Another important development was the construction of three canals in the valleys of the Moselle and the Fruchtz to complete the water connection of Metz and Thionville.

Another French project advanced during 1919 aimed to put Dieppe into direct waterway communication with Paris by constructing a canal from Dieppe to Rouen. It was announced that the scheme had progressed to a stage where parliamentary powers would be applied for to carry out the undertaking. The necessary capital was guaranteed for the work, which would require about five years.

CANARY ISLANDS. A group of islands off the northwest coast of Africa, province of Spain. Area, 2808 square miles. The census of Dec. 31, 1910, gave the population as 444,016; while the estimate of Dec. 31, 1916, places it at 497,995. The capital, Santa Cruz de Teneriffe, had a population of 63,004 in 1910, which was estimated at 79,889. Next in size to the capital is Las Palmas with an estimated population in 1917 of 69,758. The leading exports are tomatoes, bananas, potatoes, and wheat.

CANCER. As time progresses certain facts about cancer stand out in an increasingly bold relief, some of which run counter to popular and even professional beliefs. It is clearly increasing in incidence and at present is claiming 80,000 annual victims in the United States alone. There is a certain racial immunity, as shown for example in the low incidence of cancer among the reservation Indians. The part played by prosperity and high civilization in the cause of

the disease, which appears to be a notable one, will be better understood when the figures of cancer incidence during the years of the great war have been published; for millions of people were and still are living on a very low ration and often under primitive conditions which approximate those of semicivilized races. Cancer is not properly a disease of old age, but of upper middle age and appears to occur with increasing frequency in young subjects; so that the surgeon no longer thinks it unique if he encounters the disease in the early twenties. Inheritance of the cancer tendency is vague, but "cancer families" are known in which the disease appears at a relatively early period and attacks unaccustomed localities. Cancer is one of the few "diseases of the robust," and the exuberant health and vigor of many of these subjects almost suggest the presence of some unhealthy vital stimulus such as is seen in the redundant health of the Tyrolean arsenic eaters. It is now only too evident that surgery cannot be depended on to cope with the disease as a racial evil, although it may hold out hope to the individual. The use of x-rays and radium will doubtless secure more and more relief in the future because it appeals more to the public, who seem unwilling to co-operate with the profession in a surgical crusade. Many sound thinkers are still hopeful of future benefits from dietetic and other medical procedures, especially in the direction of prevention. The parasitic theory, once quiescent, has now an increasing following.

CANDIA. See CRETE.

CAPE COLONY. See CAPE OF GOOD HOPE PROVINCE

CAPE OF GOOD HOPE PROVINCE. One of the four original provinces formerly known as Cape Colony, the southernmost province of the Union of South Africa. Area, 276,966 square miles, with total population of 2,564,965; European or white, 582,377; colored, 1,982,588 (all these, census of 1911). In 1918 the European population was 619,319. There are the following divisions of the province: Bechuanaland, East Griqualand, Tembuland, Pondoland, Transkei, and Walfish Bay. The capital is Capetown, with a population in 1917 of 67,159, including the suburbs, 161,579. Other towns with their population in 1911 are: Kimberly, 29,525; Beaconsfield, 14,294; Port Elizabeth, 30,688; London, 20,867; Graham's Town, 13,830; Paarl, 11,018; Simonstown, 4751; Vryburg, 2461; Mafeking, 2296. The races are mainly Hottentots, Malays, Kaffirs, Fingoes, and Bechuanaas. Malays numbered 19,763 and of the colored population 415,282 were of mixed races. Among the colored population the females outnumbered the males, but among the whites the reverse was true. The number of Christians was 1,437,688 according to the 1911 census. The churches were at that time, in the order of their numerical importance: Dutch, Congregational, and Anglican. The census also showed that 1,735,491 could neither read nor write. European children are required to attend school and the state has established (1918) 4888 state aided schools. The estimate of Provincial Expenditures for 1917-18 was £1,789,795, and, the estimated revenue was £1,367,210. In 1918 (by provisional figures) the trade between the Cape of Good Hope Province and the United Kingdom was: Imports from Cape, £8,065,208; exports from U. K. to Cape—British produce and manu-

factures £10,251,287—foreign and colonial merchandise £310,815.

CAPE VERDE ISLANDS. A West African group of Portuguese islands, with a total area of 1516 square miles, with a population, according to the census of Dec. 31, 1912, of 149,793, of whom 4799 were white. The chief products are coffee, hides, medicinal plants, and millet. For revenue, expenditure, imports and exports, see preceding YEAR BOOK. The ports of the Archipelago were visited in 1916 by 7407 merchant vessels of 5,017,871 tons, besides the coasting trade. Capital, Praia.

CARINTHIA. Prior to the break-up of the Austro-Hungarian Empire, this country was a crownland and titular dukedom of Austria. It is bounded by Tirol on the west, Styria on the east, Salzburg and Styria on the north, and Venetia, Görz, and Carniola on the south, with an area of 3987 square miles. It had a population of 396,200 by the census of 1910, which was estimated at 406,162 in 1913. Of these 304,287 were German speaking and the majority have Catholicism as religion. The capital is Klagenfurt, with a population of 28,911 in 1910. Carinthia was formerly represented by 10 members in the lower house of the Austrian Parliament and was locally governed by a single chamber of 43 members. For further details based on the 1910 census, no later figures being obtainable, see preceding volumes of the YEAR BOOK.

CAPPIANI, LUISA. A German dramatic soprano and noted teacher, died at Zurich, September 27. She did not make her debut until after the death of her first husband, Gisbert Kapp, in 1859. In 1861 she sang Wagner rôles in Rotterdam. In the United States she appeared in 1867 as Mme. Kapp-Young. After several seasons in Italy she came back to this country, and established herself under the name of Cappiani as a teacher in Boston and New York. After 1899 she lived permanently in Milan. In 1884 she was one of the original founders of the American College of Musicians.

CARLISLE INDIAN SCHOOL. See INDIAN TRAINING AND INDUSTRIAL SCHOOL.

CARNEGIE, ANDREW. American financier and philanthropist, died of pneumonia at Shadow Brook near Lenox, Mass., on August 11. Though he had been for several years preceding in bad health which became worse during the past year, his death was unexpected. He was born at Dunfermline, Fifeshire, Scotland, Nov. 25, 1835, the son of a Scotch weaver. In 1848 when introduction of steam threw so many weavers out of employment the Carnegie family came to the United States and while still a boy he worked as weaver's assistant in a cotton factory in Allegheny, Pa. (1848). In 1851 he was a telegraph messenger boy in a Pittsburgh office; and having learned telegraphy entered the service of the Pennsylvania Railroad as telegraph operator, but advanced rapidly until he became superintendent of the Pittsburgh division. His first important financial interest was in the Woodruff Sleeping Car Company and he there laid the foundation of his fortune which by careful investment in oil lands was subsequently increased. During the Civil War he rendered excellent service to the War Department as superintendent of military railroads, and of government telegraph lines in the east. He began to see a great future for iron and steel and henceforth interested himself in the development of iron works of various

kinds, especially the Keystone Bridge Works at Pittsburgh and the Union Iron Works. In 1867 he visited England for the purpose of placing certain securities there and was successful, receiving a large commission. While there he studied carefully the making of steel and in 1868, having returned to the United States, he installed the Bessemer processes in his shops. He organized in Pittsburgh the firm of Carnegie, McCandless & Company. By 1874 the output and profits of his works were very large. In 1881 the firm was reorganized under the name of Carnegie Brothers and Company with a capital of \$5,000,000. He bought shares in the Homestead and Edgar Thomas steel works as well as in other large plants and became the principal owner a few years later. In 1888 besides being the principal owner of the Homestead Steel works he controlled seven other large steel plants. In 1899 he consolidated his interests in the Carnegie Steel Company, which in 1901 was merged in the United States Steel Corporation. Thereupon Mr. Carnegie retired from business and from that time on devoted himself to philanthropy. The price that he received upon the incorporation with the United States Steel Company was placed at \$460,000,000 and his annual income at that time was \$22,000,000. The value of his property since that date was said to have greatly increased. The most notable gift was that to libraries throughout the United States and Great Britain, the Carnegie library being a feature known throughout the entire country, as well as in Canada, New Zealand, and the United Kingdom. In 1918 his gifts in all were placed at over \$300,000,000, and at the time of death at \$400,000,000. The largest single gift was that of \$24,000,000 for the creation of the Carnegie Institute at Pittsburgh. Some of the other leading benefactions were as follows: \$22,000,000 to Carnegie Institution of Washington; \$10,000,000 to Scotch universities; \$5,200,000 to New York for branch libraries; \$5,000,000 to the Carnegie Hero Fund Commission, Pittsburgh; \$5,000,000 to funds for the benefit of the employees of the Carnegie Steel Company; \$1,500,000 for the Peace Temple at The Hague. His donations for libraries in 1918 had come to over \$60,000,000 for over 3000 municipal buildings; \$10,000,000 for the Carnegie endowment for international peace; \$16,250,000 for the foundation for the advancement of teaching in the United States, Canada, and Newfoundland. In 1912 he announced that his property with the exception of \$25,000,000 had all been turned over to the Carnegie Corporation, organized in New York on Nov. 10, 1911. His membership in societies, clubs, and the honors which he received makes too long a list to be given here. He was Lord Rector of Saint Andrew's University, Scotland, 1903-07, and Lord Rector of Aberdeen University, 1912-14. His publications include: *An American Four-in-Hand in Britain* (1883); *Round the World* (1884); *Triumphant Democracy* (1886); *The Gospel of Wealth* (1900); *Empire of Business* (1902); *James Watt* (1905); *Problems of To-day* (1909).

CARNEGIE ENDOWMENT FOR INTERNATIONAL PEACE. See INTERNATIONAL PEACE AND ARBITRATION.

CARNEGIE FOUNDATION FOR THE ADVANCEMENT OF TEACHING. See UNIVERSITIES AND COLLEGES.

CARNEGIE INSTITUTION OF WASH-

INGTON. The 1919 annual report of President Robert S. Woodward contains a summary of the activities of the institution during the year ending October 31st. When the armistice was signed the Institution was devoting about two-thirds of the staffs, some 200 men, to war work. Of the larger undertakings in this work, the most conspicuous were the development to the point of quantity production of the optical glass industry by the Geophysical Laboratory; the manufacture of precision micrometers for the U. S. Bureau of Standards and the manufacture of optical adjuncts for artillery by the staff of the Mount Wilson Observatory; the construction of special devices for the navy in the shops of the Department of Terrestrial Magnetism; the contributions of the Nutrition Laboratory to knowledge of the effects of undernutrition; and the information service rendered by the Department of Historical Research. This work continued until about the middle of 1919. Because of all this war work, the regular activities of the Institution have been somewhat neglected from lack of time and men, but now that the war is at a close they are being taken up again with renewed vigor. The Hooker telescope, the largest in the world, was completed just before the United States entered the war, but experiments have not been conducted with it until this year. As an engineering feat it was a hazardous undertaking, but the Director of the Observatory now reports that the optical and the engineering difficulties have been overcome and that the instrument under repeated tests has proved efficient quite beyond the conservative theoretical predictions of attainable capacities. On October 19th of this year, the non-magnetic ship *Carnegie* sailed from Virginia on her sixth cruise, to comprise surveys in the Atlantic and Indian Oceans not yet adequately covered by previous circuits. This ship had been in port during the war on account of the dangers of navigation.

During the year the Division of Publications issued 29 volumes. Among them the most important was the *History of the Theory of Numbers* by Prof. Leonard E. Dickson of the University of Chicago. Up to October 31st, Vol. I had been printed and Vol. II was in the press. Vol. I was devoted to divisibility and to primality of numbers. Vol. II will be devoted to diophantine analysis.

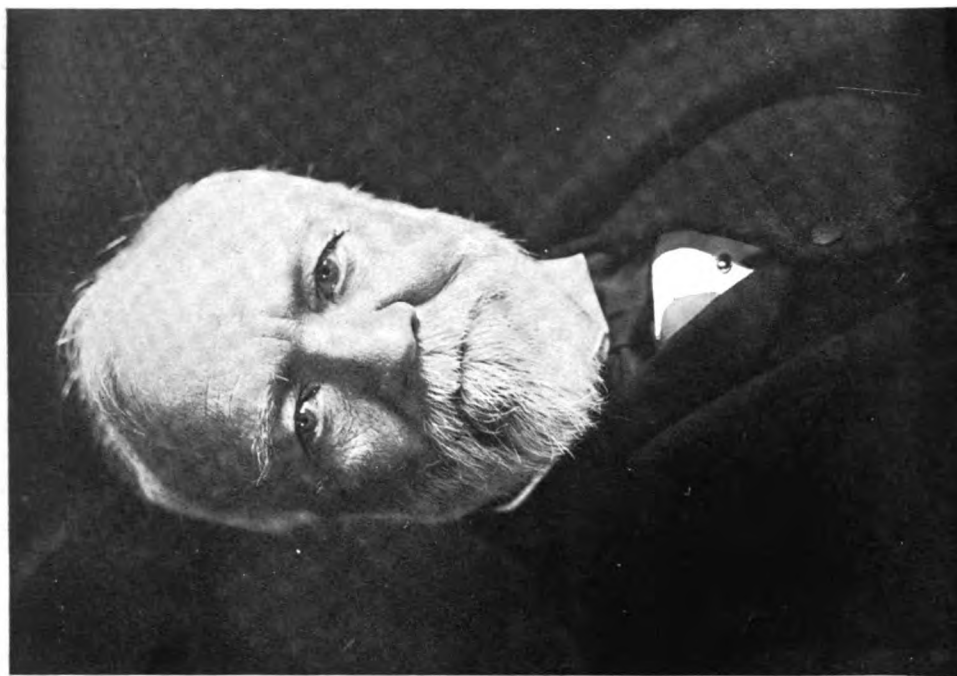
During the year several important men have been lost to the Institution by death, the most important being Mr. Andrew Carnegie who died on August 11th at Lenox, Mass. In his relations with the trustees of the Institution, Mr. Carnegie took a most liberal attitude, never seeking to dominate, or even to guide. Other recorded deaths are: Andrew D. White, eminent historian, and a trustee of the Institution; Theodore Roosevelt, a member of the Board of Trustees under the terms of the original charter, which gave to the Institution a quasi-governmental connection; John Coit Spooner, distinguished lawyer and ex-Senator, and another member of the Board of Trustees; and W. Max Muller, eminent orientalist and a Research Associate of the Institution since 1904. He was an indefatigable student of Egyptology and made three archaeological expeditions under the auspices of the Institution to that country.

The financial report shows total receipts during the year of \$1,532,028.53, and disbursements amounting to \$1,612,602.01. The receipts from



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ANDREW CARNEGIE

PROMINENT PHILANTHROPISTS WHO DIED IN 1919

interest on endowment, bond investments, sales of publications, etc., in the 17 years since its founding, total \$17,501,356.75.

CARNEGIE UNITED KINGDOM TRUST. See MUSIC, England.

CARNIOLA. Formerly a titular dukedom and crownland of the kingdom of Austria, having Carinthia and Styria on the north, Styria and Croatia on the east, Görz and Gradisca on the west, and Croatia and Istria on the south. Area, 3842 square miles. The population according to the census of 1910 was 525,995, the largest part being German speaking and having Catholic religion. For further details based on 1910 census see preceding volumes of the YEAR BOOK, as there are no later figures available. Laibach is the capital, and had a population of 41,727 in 1910. Under the Empire Carniola was represented in the lower Austrian Parliament by 12 members and locally governed by a single chamber of 51 members.

CAROLINE ISLANDS. See GERMAN NEW GUINEA.

CARPENTER, ROLLA CLINTON. Civil engineer, died at Ithaca, N. Y., January 19. He was born at Orion, Michigan, June 26, 1852; studied at the Michigan Agricultural College, the University of Michigan and Cornell University. He entered the faculty of the Michigan Agricultural College in 1875 and was professor of experimental engineering at Cornell University from 1895 to 1917 after which he became professor emeritus. He was consulting engineer for a large number of important enterprises in different parts of the country. Among his writings may be mentioned the following: *Experimental Engineering* (8 edits., 1890, 1902); *Heating and Ventilating* (6 edits., 1898, 1910); *The Gas Engine* (with Professor Diedrichs); *Heating and Ventilation* (*New Internat. Ency.*, and *Kidder's Architectural Pocket Book*); numerous papers, translations, etc.

CARR, CLARK EZRA. Lawyer and diplomat, died at Peoria, Ill., February 28. He was born at Boston Corners, N. Y., May 30, 1836; studied at Knox College, Illinois, and at the Albany Law School in New York, and practiced law in Galesburg, Ill. During the Civil War he served on the staff of Governor Yates of Illinois. From 1889 to 1893 he was minister to Denmark. He was prominent as a spokesman for the Republican party in almost every political campaign after 1856 and was the author of the following books: *The Illini* (1904); *Lincoln at Gettysburg* (1906); *My Day and Generation* (1908); *The Railway Mail Service* (1909); *Life of Stephen A. Douglas* (1909); also magazine articles.

CARTER, FRANKLIN. Former president of Williams College, Mass., died at Williamstown, Mass., November 22. He was born at Waterbury, Conn., Sep. 30, 1837, studied at Yale and Williams, graduated at the latter in 1862; and subsequently studied at the University of Berlin. He was professor of Latin at Williams College, 1865-72; professor of German at Yale, 1872-81; became president of Williams College, 1881, holding that office for 10 years when he resigned. After 1896 he was president of the Clarke School for the Deaf. He was trustee of Williams College and other educational institutions, and an officer or member of important societies. He wrote a *Life of Mark Hopkins* (1882), and edited an edition of *Goethe's Iphigenie auf Tauris*.

CARUS, PAUL. Philosophical writer and editor, died at La Salle, Ill., February 11. He was a well known writer on a great variety of philosophical subjects. He was born at Ilsenburg, Germany, July 18, 1852, and was educated at the universities of Strassburg and Tübingen. He was editor of the *Open Court* and the *Monist*. Among his publications may be mentioned the following: *The Soul of Man* (1891); *Monism: Its Scope and Import* (1891); *Religion and Science* (1893); *The History of the Devil* (1900); *The Surd of Metaphysics* (1903); *The Story of Samson* (1907); *Foundations of Mathematics* (1908); *God* (1908); *Pleroma* (1909); *The Philosophy of Form* (1911); *The Mechanistic Principle of Relativity in the Light of the Philosophy of Modern Science* (1913); *Nietzsche and Other Exponents of Individualism* (1914); in addition to several works on Buddhism and Chinese philosophy, and *Truth and Other Poems and Night* (Dramatic Poem).

CASE SCHOOL OF APPLIED SCIENCE. An engineering college at Cleveland, Ohio, giving courses in civil engineering, mechanical, electrical, mining, and chemical engineering, and physics. In the fall of 1919 there were 781 students and 62 members in the faculty. Productive funds for the year amounted to \$207,991. The library contained 13,981 volumes. Case was founded in 1881. President, Charles S. Howe, Ph.D., LL.D.

CATTLE. See LIVE STOCK; DAIRYING; VETERINARY MEDICINE, etc.

CAUCASUS. The isthmian region of south-eastern Europe, separating the Black Sea and the Sea of Azov from the Caspian Sea. This region was formerly one of the general governments of Imperial Russia, with divisions into Ciscaucasia and Transcaucasia. The area is 181,173 square miles, and estimated population, Jan. 1, 1915, 13,299,100. For further information as to divisions of the country, and distribution of the population by color, race, etc., see preceding volumes of the YEAR BOOK.

CELEBES. See EXPLORATION.

CELEBRATIONS. The centenary of the death of James Watt was celebrated in Birmingham, England on September 16th, 17th, and 18th, and exercises commemorative of his invention of steam engines were arranged under the direction of a committee of which Sir David Brooks, Mayor of Birmingham, was chairman and consisting of official representatives from the universities of Belfast, Birmingham, Bristol, Cambridge, Durham, Edinburgh, Glasgow, Ireland, Leeds, Liverpool, London, Manchester, Sheffield, and St. Andrews, as well as numerous technical schools, various societies and learned institutions, and many prominent citizens, including the U. S. Ambassador.

The Commemoration began on September 16th with a service in the Handsworth Parish church (in which is the Chantry statue of James Watt), where the address was made by the Canon of Westminster; after which there was a garden party, a reception, and a lecture. On the morning of September 17th there were lectures dealing with the history and development of the application of science to industry and in the afternoon visits were made to the Watt engines at Ocker Hill and at Bordesley, while in the evening the Centenary Dinner was held. On September 18th visits were again made to see the Watt engines

and to the Soho Foundry, where some of the original buildings erected by Watt are still standing. Also a Degree Congregation was held at the University of Birmingham where degrees were conferred upon distinguished engineers and scientists. Excursions to places of historic interest, such as Stratford-on-Avon and Warwick were arranged for. During the Commemoration a large collection of Watt, Boulton, and Murdoch relics were on exhibition.

To commemorate the Centenary funds were solicited, 1, To endow a Professorship of Engineering, to be known as the James Watt Chair, at the University of Birmingham, for the promotion of Research in: "The fundamental principles underlying the production of Power, and the study of the conservation of the natural sources of energy." 2 To erect a James Watt Memorial Building, to serve as a museum for collecting together examples of the work of James Watt and his contemporaries, Boulton and Murdoch, illustrating this interesting epoch in the history of engineering, and 3, To publish a Memorial Volume.

Independence Day was celebrated in Washington, D. C., by seven pageants, showing the calls of art, of the land, of commerce, business and professions, of the children, of labor, of liberty, and to world service were given late on July 4th on the lawns of department and other public buildings. These pantomimes were merged into a great pageant entitled the "Offering of Peace," which showed the peoples of the world having passed through the horrors of war returning with courage and expectation to the pursuits of peace.

Victory pageants depicting war events were presented in various cities to serve as a stimulus to the Victory Loan campaign, and that given in New York on May 3rd, was especially noteworthy.

As the time for the Tercentenary of the landing of the Pilgrims of the *Mayflower* at Plymouth in 1620 approaches plans for its celebration are being prepared. In June a joint committee of two Senators and four representatives from Congress was appointed to confer with the Massachusetts State officials and it was directed to recommend legislation necessary for "participation by the government of the United States in the celebration of this historic event." Senator Harding of Ohio was made chairman of the committee.

The General Society of *Mayflower* Descendants is raising funds to purchase two corner lots at the end of Middle Street, Plymouth, Mass., to be added to the ancient burial ground on Cole's Hill. The contemplated purchase would give the society the ownership of the original graveyard, only a portion of which is now preserved. The property will provide sufficient room for an oval 100 by 40 feet, which will be inclosed by a stone coping and marked in the centre by a monument or boulder containing the names of the original settlers who died at Plymouth during the first Winter.

The New York State Society of *Mayflower* Descendants has appointed a committee which proposes to erect a suitable monument in New York City to commemorate the arrival of the *Mayflower* in the New World in 1620. It will be of bronze and stone and it is hoped that it will be completed and ready for dedication on the tercentenary date.

The National Society of the Colonial Dames of

America at their annual Council held in Washington, D. C., in May, 1919, pledged \$24,000 towards the erection of a granite memorial to be placed on a granite sea-wall, which it is proposed shall be built by this organization at a cost of about \$50,000.

In November the announcement was made that the Administrative Committee of the Federal Council of Churches of Christ in America had decided to name a special committee for the *Mayflower* Tercentenary to work in coöperation with the British Council's *Mayflower* Committee. They plan to hold great celebrations in Plymouth, in London, in Southampton, in Nottingham, in Northumberland, as well as in Amsterdam and Leyden, so that the delegates who come from America will be able to make a pilgrimage of the places associated with the story of the Pilgrims.

CELLERE, B. MACCHI DI. Italian diplomat, died at Washington, D. C., October 20. He had been Italian Ambassador to the United States since 1913. He was born in 1866 and served as private secretary to successive ministers in the Department of Foreign Affairs, and in 1904 was chargé at Washington. He was Minister to the Argentine Republic from 1907 to 1912. His death occurred suddenly as the result of an operation at the hospital.

CEMENT. Owing to war restrictions the production of cement in the United States during 1918 was the smallest recorded since 1909. The average factory price per barrel for Portland cement in 1918 was \$1.56, as against \$1.35 in 1917—an increase of 17.9 per cent.

Shipments of Portland cement in 1918 amounted to 70,915,508 barrels, valued at \$113,153,513, compared with 90,703,474 barrels, valued at \$122,775,088, in 1917, a decrease in quantity of 21.8 per cent and in value of 7.8 per cent. The production in 1918 was 71,081,663 barrels, compared with 92,814,202 barrels in 1917, a decrease of 23.4 per cent. Stocks at the mills increased from 10,353,838 barrels in 1917 to 10,453,950 barrels in 1918, an increase of 1 per cent.

Exports of hydraulic cement from the United States in 1918 totaled 2,252,446 barrels, valued at \$5,912,166, or \$2.62 per barrel, compared with 2,586,215 barrels, valued at \$5,328,536 or \$2.06 per barrel, in 1917. This was a decrease in quantity of 12.9 per cent and an increase in value of 11 per cent. Imports for consumption in 1918 were 305 barrels, valued at \$1200, or \$3.93 per barrel, compared with 2323 barrels, valued at \$6076, or \$2.62 per barrel, in 1917, representing a decrease in quantity of 86.9 per cent and in value of 80.3 per cent.

In the autumn of 1919 it was officially announced that in order to afford ample opportunity for mill adjustments the United States departmental cement committee had postponed the proposed increase in the fineness requirements for Portland cement until Jan. 1, 1921. At that time the government would require a 20 per cent residue on the No. 200 sieve instead of the 22 per cent of the existing standard specification.

CENSUS, UNITED STATES. The law providing for the Fourteenth Census which was to be taken in 1920 was enacted on March 3, 1919. In respect to scope, methods, and administration it follows in the main the lines of the Thirteenth Census legislation. Among the most important new points in respect to scope the following may be mentioned: The date of the census was changed from April 15th to January 1st. The



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minimum-size limit for cities in which enumeration must be completed within two weeks was changed from 5000 to 2500. Provision was made for the census of forestry and forest products; for information as to the encumbrances on homes and farms; for inquiry as to the sex of farm operators; for the amplification of the irrigation inquiry and the addition of a drainage inquiry; for mid-decennial censuses of agriculture to be taken in 1925 and at 10 year intervals thereafter; for biennial censuses of products of manufacturing industries, beginning in 1921. In 1919 the Census Bureau was active in preparing for the new census and took a number of important measures. Several meetings of the Joint Advisory Committee chosen from statistical and economic experts were held, and all phases of the census work were carefully considered by it. The general population schedule was completed and issued on June 9th and was in the course of the year distributed to the supervisors and enumerators. In general form it was similar to those used in the two last decennial censuses. In the census of Alaska the Bureau planned to cooperate with the Bureau of Education, and in the census of Guam, Samoa, and the Panama Canal Zone it acted in conference with officials of the War and Navy Departments. Plans were made for ascertaining the military and naval population through the War and Navy Departments. In like manner cooperation was assured with other departments of the government in the respective fields of inquiry, for the purpose of avoiding duplication of work.

The important questions to be asked of all persons according to the schedule issued in 1919 were as follows:

1. Age at last birthday.
2. Each person ten years of age and over will be asked whether he is able to read or write.
3. Each person will be asked his birthplace as well as the birthplace of father and mother.
4. If foreign born the date of coming to the United States will be asked, and, if naturalized, the date of becoming a citizen; also mother tongue or native language.
5. Each head of a family will be asked whether his home is owned by him or rented. If owned, whether the home is mortgaged or free of debt.
6. Each person will be asked his occupation and whether he is an employer or employee or is working on his own account.

Of farmers especially the following are among the important questions asked:

1. Each occupant of a farm will be asked how many years, if any, he worked on a farm for wages; how many years, if any, he was a tenant; and how many years, if any, he farmed as an owner.
2. Whether he (a) owns, or (b) rents, or (c) partly owns and partly rents his farm, or whether (d) he operates the farm for others as a manager or superintendent.
3. How many acres in his farm? Number of improved acres? Number of unimproved acres and number of acres of woodland?
4. Total value of farm? Total value of buildings? Value of implements and machinery on farm?
5. Whether farm is mortgaged? If so, the amount of mortgage?
6. Expenses for feed, fertilizer, and labor in the year 1919?
7. Several questions concerning artificial drainage of his farm.
8. Number of cows, horses, sheep, chickens, and other domestic animals on the farm January 1, 1920?
9. Quantity and acreage of all crops grown on the farm in 1919, including fruits and vegetables?
10. Quantity of milk and butter sold off the farm during the year 1919?
11. Acreage of timber land on farm and value of forest products.

CENTRAL AMERICA. The territory including Guatemala, Honduras, Salvador, Nicara-

gua, Costa Rica, and British Honduras. The term sometimes includes also Panama. See these titles.

CENTRALIA DISTURBANCE. See INDUSTRIAL WORKERS OF THE WORLD.

CEYLON. An island in the Indian Ocean at the southern end of Hindustan constituting a British colony. Its extreme length from north to south is 376 miles, and extreme width 139 miles. Area, 25,481 square miles. Population, in 1911, 3,592,883; estimated, at the beginning of 1918, exclusive of the military and shipping, 4,632,400. The Maldive islands which consist of a group of coral islets 400 miles to the west are tributary to the Ceylon government, and are governed by an elective Sultan. Their population is placed at 72,237. The population of Ceylon as distributed by race according to 1917 estimates is as follows: Singhalese, 2,951,100; Tamils, 1,388,100; non-Malay Mohammedans, 2,766,600; Burghers, 28,750; Malays, 14,000; Veddahs (aborigines) and others, 16,600; Europeans, excluding those absent for military duty, 7200. The marriage rate according to 1917 estimates was 11.87 per thousand, the birth rate 40.1, and the death rate 24.7. Distribution according to religions in 1917: Buddhists, 2,791,120; Hindus, 1,058,450; Mohammedans, 319,965; Christians, 461,584. The urban population was placed at 13 per cent of the total. The chief towns with their population according to the census of 1911 are: Colombo, 211,274; Galle, 39,960; Jaffna, 40,441; Kandy, 29,451. The government schools in 1917 numbered 817 with an attendance of 84,552 boys and 28,544 girls; aided schools 1835, with an attendance of 131,892 boys and 78,434 girls; unaided schools 1229 with an attendance of 24,864. In English and English-vernacular schools which numbered 332 there were 37,170 boys and 10,353 girls. Acreages under cocoanuts in 1917, 904,674; rice, 702,165; other grains, 133,028; tea, 508,779; rubber, 251,500; cinnamon, 39,930; cacao, 44,280. The chief mineral industry from the point of view of exportation is that of plumbago whose normal annual production is about 30,000 tons. In 1918 only about one-half of that quantity was produced owing chiefly to the loss of the American market during the latter half of the year. The United States took less than 55 per cent of the quantity as compared with 80 per cent in 1917. The mica industry was revived during 1918 and a beginning was made in the preparation of monazite. The figures for the overseas trade of Ceylon for 1913 to 1918 inclusive are as follows:

Year	Imports	Exports	Total trade
1913	\$60,368,312	\$75,588,731	\$135,957,043
1914	55,905,553	70,844,514	126,750,067
1915	53,089,540	88,692,283	141,781,823
1916	68,617,895	96,520,835	165,138,730
1917	59,735,959	98,679,791	158,415,750
1918	57,657,242	68,560,980	126,218,222

Of the total exports in 1918, \$64,118,794 represents the value of Ceylon produce and \$4,442,186 that of reexports. In the total of the Ceylon trade the British possessions had nearly 50 per cent. Of foreign countries importing from Ceylon Japan held front rank in 1918. The United States had only 11 per cent of Ceylon's trade as compared with 22 per cent in 1917. The imports from the United States include a larger amount of metals and metal ware than from any other importing country. In respect to exports, rubber

and tea made up 72 per cent of the value of Ceylon's exports in 1918 as compared with 76 per cent in 1917. In 1918 the export of rubber sank to a point lower than in any previous year after 1914. Restrictions imposed by the United States greatly cut down shipments to America, and the export to the United Kingdom was cut off on account of the removal of rubber from the priority list, and to the policy of the rubber companies in restricting the crops. The exportation of tea in 1918 was less than in any previous year after 1908. Cocoanuts, a staple product, also suffered as a result of war conditions. The total declared exports from Ceylon to the United States were considerably below those of any previous year after 1914, being valued at \$12,682,374. The imports from the United States were about the same in 1918 as in 1917, being in round numbers \$1,800,000.

Revenue (1916-17) £4,465,458; expenditure, £4,289,044. The public debt on Sept. 30, 1917, was £5,410,667.

Railways open for traffic on Sept. 30, 1918, 714; at that time several extensions were under construction. The post offices numbered 524, and the telegraph wire had a length of 6953 miles. The shipping entered and cleared in 1917 was 6,153,778 tons, of which 14,626,345 was British. Ceylon possessed a merchant marine on Jan. 1, 1918, of 137 sailing vessels and 8 steamers.

CHADWICK, FRENCH ENSOR. Rear-Admiral in the United States navy, died in New York City, January 27. He was born at Morgantown, W. Va., Feb. 29, 1844; graduated at Annapolis, 1864, and was on board the *Marblehead* when it pursued the Confederate steamships *Florida* and *Tallahassee*, 1864. He was in command of the *New York* and the chief of staff of Admiral Sampson during the war with Spain and took part in its most important naval engagements, and he was commander in chief of the South Atlantic Squadron in 1904. He rose to the rank of rear-admiral Oct. 11, 1903, and retired, Feb. 28, 1906. A list of his writings includes the following: *Temperament, Disease, and Health* (1892); *An Unsolved Problem* (1896); *Causes of the Civil War* (American Nation Series, Vol. XIX, 1906); *Relations of the United States and Spain, 1776-1898*; *Diplomacy* (Vol. I, 1909); and *Spanish-American War* (Vols. II and III, 1911); *The American Navy* (1915).

CHAMBER MUSIC. See MUSIC.

CHAMBER OF COMMERCE, RECONSTRUCTION PROGRAMME, see INDUSTRIAL RECONSTRUCTION.

CHARITIES. In the field of charitable endeavor the year has been marked by the sincere efforts of all agencies to readjust themselves and redirect their activities along peace lines. The signing of the armistice threw into confusion many plans and undertakings of the social organizations, and made radical readjustment necessary in almost the whole field. Particularly was this true of the special agencies created to meet the requirements of the war. See RED CROSS, WAR CAMP COMMUNITY SERVICE, Y. M. C. A., Y. W. C. A., ROCKEFELLER PHILANTHROPIC BOARDS, RELIEF FOR WAR VICTIMS, RUSSELL SAGE FOUNDATION.

Of the foregoing agencies, that which has been engaged most extensively in relief work with families in this country is the Red Cross in that branch of its activities known as Home Service. Soon after the outbreak of the war, it became

evident that some provision was necessary to help the families of men in the service with their unusual perplexities, such as difficulties of dealing with new and complicated governmental machinery, and delays incident to the system of allowances, allotments, compensation for injuries, and insurance granted to men in the service. A Bureau of Civilian Relief, formerly called into action only to cope with disasters, was quickly expanded to meet this need, and Home Service Sections composed of some paid and many voluntary workers, were established in connection with all the chapters as well as the majority of the branches, and were equipped to give information, sympathetic advice and direction, and relief of various kinds. Division offices were organized to help and supervise this work, and to train workers for the field. Nearly 4000 such Home Service Sections have been established with nearly 12,000 branches. The work was in the hands of 30,000 workers, of whom all but 2000 were volunteers. More than 1,000,000 different families have been reached by this organization since the war began, and the material relief disbursed by it to families of soldiers and sailors has averaged about \$500,000 a month.

The question of a peace-time programme for Home Service is still under discussion. The organization is opposed to duplication, and has signified its intention of withdrawing, when its work for men in service is at an end, from any community that is organized to carry on work for distressed families. This would mean ceasing to operate in most of the larger cities of the country, but would leave a very large field for its activities in the smaller towns and rural communities, many of which have for the first time experienced the benefits of intelligent social work directed toward the impecunious members of the community. In the larger communities as well, the effect of the Home Service work has often been to stimulate existing agencies for family social work to renewed activities.

Partly in response to the demand so created, the American Association for Organized Family Social Work (formerly the American Association for Organizing Charity) has extended its programme, and reorganized its staff to provide an Executive Department as a general suggestive help centre and means of inter-communication for member societies, and a Field Department which makes visits of organization, reorganization or consultation to such communities as need their services. It works in the closest co-operation with the division offices of the Red Cross. The Association is composed of 177 variously-named societies in as many different cities, which share the same general principles of doing case-work with families. They meet certain requirements such as employing at least one competent paid worker; their boards of management are open to all in the community regardless of sect; and they subscribe to the Transportation Agreement which prohibits the "passing on" of dependents from one community to another on which they have no claim. During the past year the Association assisted in the organization or reorganization of 13 societies for family social work, and made visits of consultation to 37 others, as well as carrying out two special community surveys. The total number of cities advised by correspondence was 288.

NATIONAL CONFERENCE OF SOCIAL WORK. The forty-sixth annual meeting of National Confer-

ence of Social Work was held this year at Atlantic City, June 1-8. This organization "exists to facilitate discussion of the problems and methods of practical human improvement, to increase the efficiency of agencies and institutions devoted to this cause and to disseminate information." In 1917 the name of the organization was changed from the National Conference of Charities and Correction to the present one. The organization has grown rapidly and the last meeting was marked by the largest attendance in the history of the conference, almost 5000 delegates being present. The conference is organized in 10 divisions: children; delinquents and correction; health; public agencies and institutions; the family; industrial and economic conditions; the local community; mental hygiene; organization of social forces; and the uniting of native and foreign born in America. General sessions were held each evening of the conference. At each of the sessions the work of one division was presented and discussed. Among the principal topics discussed were: a scientific basis of social work; a peace-time home service programme; the coöperative movement at home and abroad; provision for bringing the treatment of mental disease in civilian population up to the standards established in the army; the needs of industrial cripples; minimum standards of child welfare; standards of admission to day nurseries; standard methods in research surveys; case-work and industrial standards; effects of good standards in housing and recreation; a standard organization for community federation; health and the standard of living; elementary education; a living wage; rural communities; the negro problem; the immigrant problem; and European suffering.

Great interest was taken in the proposal "to request the President of the United States through the Secretary of the Interior or other cabinet official, to call a conference of national social and civil organizations to consider the correlation of efforts of those agencies and national budget planning (for the organizations concerned)." A Committee of Ten was finally appointed to execute this proposal. William J. Norton is chairman of the committee. A Committee of Twenty-one was also selected "to report on the advisability of a plan whereby the conference may give expression to standards and ideals." Otto W. Davis was made chairman of this committee.

During or preceding the Conference the following organizations held meetings: National Probation Association; National Conference of Jewish Charities; Conference of Foreign Community Workers, National Board; Y. W. C. A.; National Children's Home and Welfare Association; National Travelers' Aid Society; American Association of Hospital Social Workers; National Social Workers' Exchange; National Conference on the Education of Truant, Backward, Dependent, and Delinquent Children; New Jersey State Conference of Charities and Correction; National League on Unclean Conditions Among Negroes; National Conference of Catholic Charities; National Federation of Day Nurseries; Secretaries and Other Officers of State Conferences of Social Work; American Association of Officials of Charity and Correction; Home Service Workers, American Red Cross; Bureau of Information for Child Helping Societies; and the Inter-City Conference on Illegitimacy.

The divisions and chairmen of the Conference for 1920 are as follows: Children, Henry W. Thurston; delinquents and correction, Bernard Glueck; health, George J. Nelback; public agencies and institutions, Robert W. Kelsa; the family, Amelia Sears; industrial and economic conditions, Florence Kelly; the local community, Howard S. Braucher; mental hygiene, C. Macfie Campbell; organization of social forces, William J. Norton; uniting of native and foreign born in America, Allen T. Burns. Owen R. Lovejoy was elected president of the organization for 1920. The annual meeting of the Conference will be held at New Orleans in 1920.

INSTRUCTION IN SOCIAL WORK. The problem of providing trained workers for the rapidly expanding needs of the social and charitable field has been extremely pressing for the last few years. To meet it, the existing Schools for Social Work have been extending their programmes and all report greatly increased enrollment. That at Richmond, Va., has doubled its attendance, has opened new departments of recreation, industrial service and community work, and is arranging for the first time to provide field work in the rural districts. The Chicago School of Civics and Philanthropy is specializing on Americanization and the Missouri School of Social Economy has added a course for the training of public health nurses. The Boston School of Social Workers has expanded its course on problems in industry and is requiring of all full-time students a new course on the principles of physical and mental health. The New York School of Social Work, whose registration of 92 includes 15 men, has added a department of mental hygiene and a vocational course in employment management. Many of the colleges and universities maintain special departments for the teaching of social work, some of them with a distinctly vocational aspect. New training centers of this description have been opened during the past year in connection with the Universities of Louisville, Rochester, Michigan, and Oregon. Thirty institutions of learning are coöperating with the Department of Training of the American Red Cross in conducting courses ranging in length from six weeks to a year. These include, in addition to the several institutions already mentioned, the Universities of Alabama, Washington, Nebraska, Wisconsin, Iowa, Indiana, Kentucky, Ohio, Colorado, Oklahoma, Missouri, Texas, Minnesota, New Mexico, Utah, Wyoming, Idaho, Arkansas, Tulane University, Emory University, Newcomb, Berea and Goucher College.

An Association of Training Schools for Social Work has been formed by the institutions which offer at least one full year's work. Jeffrey R. Brackett of Boston is chairman. During the coming year this association plans to study curricula, with object of recommending minimum standards for this kind of education.

CHASE, GEORGE COLBY. Educator, died May 27. From 1894 to the time of his death he was President of Bates College, Maine. He was born at Unity, Me., March 15, 1844; graduated at Bates College, 1868, and studied at Harvard and at University College, London. He was professor of rhetoric and English literature at Bates from 1872 to 1894 when he became President and professor of psychology and logic.

CHAUTAUQUA INSTITUTION. Founded in 1874, this institution carried on its activities

under three general heads: (1) The public Assembly, with its educative though necessarily popular series of lectures and addresses, dramatic and other entertainments, concerts, etc., continuing through eight weeks each year. In the aggregate 50,000 persons attend annually. (2) The Summer Schools, offering formal classroom instruction in a great variety of subjects, under 13 departments, for six weeks annually, and enrolling over 3000 students. (3) The Home Reading work, presented in a set of four books and the news narrative appearing regularly in some weekly review, at present *The Independent*. The teaching element is supplied by a monthly bulletin, *The Round Table*. This department is operative throughout the year. Official enrollment is about 10,000, but readers are many more.

The forty-sixth Assembly was held beginning July 3, 1919, at Chautauqua, N. Y. A subject is taken for each week, and in 1919 the following topics were discussed by noted persons of this and other countries: "Women's After-War Problems," "Physical Efficiency and Public Health," "Music" (with many recitals), "Americanization," "The New Nations of Europe," and two weeks devoted to missionary subjects. The 1919 season was considered the most successful season in the history of the Institution. General attendance was 20 per cent above the best previous record, and registration in summer schools was 30 per cent above the largest former enrollment. During the summer a financial campaign under the name of the "Comprehensive Plan" was inaugurated with the aim to raise \$600,000 to clear the Institution from its indebtedness. Up to Sept. 1, 1919, \$415,000 had been raised, one-fifth of which was donated by Mr. John D. Rockefeller. It was expected that the rest of the amount would be raised before Jan. 1, 1920. Mr. Arthur E. Bestor is President of the Institution and Summer Schools. There are 89 members of the Summer Schools faculty. The headquarters of the Institution are at Chautauqua, N. Y.

CHEESE. See DAIRYING.

CHEMICAL INDUSTRIES. See CHEMISTRY, INDUSTRIAL.

CHEMICAL SOCIETY. See CHEMISTRY, INDUSTRIAL.

CHEMISTRY, GENERAL PROGRESS OF. The International Committee on Atomic Weights has made this year its first report since 1916. In reviewing the recent determinations the work of Guye's laboratory in Switzerland occupies a prominent place. Work of a very high order of accuracy has been done on the compounds of carbon and of bromine, only to confirm the present accepted values of their atomic weights. A new value for boron (10.9) has been placed in the table as a result of the work of Smith and van Haagen of the Carnegie Institution in Washington: a new value for argon (39.9) is based on Leduc's work in France, and 70.1 has been accepted for the atomic weight of gallium on account of the analysis of gallium chloride in the Harvard laboratories. Hönigschmid's ratios of silver to thorium bromide (reported in the *Zeitschrift für Elektrochemie*) have given 232.15 for the atomic weight of thorium; Hopkins and Balke have established 89.33 for that of yttrium from the ratio of oxide to chloride together with the analysis of yttrium chloride by Kremers and Hopkins. Other determinations made since 1916 are reviewed, but do not call for changes in the

table of atomic weights other than those noted above. In a study not yet considered by the Commission Hönigschmid has analyzed lead chloride from thorite, and obtained 207.90 for the atomic weight of lead, the highest value yet obtained. (See the YEAR BOOK for 1918.) He believes that an isotope of lead with an atomic weight 208.1 probably exists, and that the element thorium-D is not absolutely stable, but has a very long life. Hitherto no determinations of the atomic weight of scandium have been made by any other than the sulfate method. Hönigschmid has prepared the bromide of scandium by heating the oxide in a quartz tube with carbon in bromine vapor, and purified it by sublimation along the tube. Analysis of it by the Richards method gave 45.10 for its atomic weight, a whole unit higher than the value accepted in the table.

During the year several chemists of note have been taken by death. Among these should be mentioned John William Strutt (Baron Rayleigh), the discoverer of argon. His long scientific life was one of great productiveness in research, the merit of which was acknowledged by professional societies in this and other countries in their desire to award him medals, offices and honorary memberships. Of equal distinction in his field was Emil Fischer, professor of chemistry in the University of Berlin, and a world authority in organic and biological chemistry. His research work in these fields places him among the really great chemists of all time. Few indeed have contributed so largely to science, both by his own efforts in the laboratory and by the work done under his direction. Both of these men have been awarded the Nobel prize for science, the former in 1904, the latter in 1902.

The most striking papers in physical chemistry appearing during the year are without doubt those of Dr. Irving Langmuir on the arrangement of electrons in atoms and molecules, together with the brilliant conclusions drawn from his novel theory. Rejecting the current idea (based on physical evidence) of the motion of electrons in an atomic structure modeled like the planetary system, he assumes that the electrons in the elementary atoms are stationary, or at least that they are contained within a certain "cell" which is a part of the structure of the atom. Eleven postulates are stated and supported by data drawn from wide sources. These postulates are to the effect that electrons in the atoms of inert gases are arranged in pairs symmetrically placed with respect to a plane passed through the nucleus (equatorial plane); they are symmetrical with respect to a polar axis perpendicular to the plane and passing through the nucleus; they have four secondary planes of symmetry making angles of 45 degrees with each other so that the symmetry corresponds to that of a tetragonal crystal. Since the electrons occur in pairs symmetrical to the equatorial plane, there are no electrons in this plane. The electrons in any given atom are distributed through a series of concentric shells of equal thickness, the mean radii of the shells forming a series 1, 2, 3, 4, and the effective areas are 1:22:32:42. Each cell is divided into cellular spaces occupying equal areas in the respective shells and distributed over the surface of the shells in such a way as to allow the symmetry demanded in the first postulate. The first shell then contains 2 cells, the second 8, the third 18 and the fourth 32. Each of the cells in the first shell can contain only one elec-

tron, but the cells in the other shells can contain either one or two, provided all the inner shells contain the full quota of electrons before any occupy positions in an outer shell, and provided that there is an electron in every cell in this outside layer before any cell contains two electrons. The two electrons in any cell do not repel each other with strong forces, probably because there is a magnetic attraction which counteracts the electrostatic repulsion, as suggested in the Parson magneton theory of a few years ago. The remaining postulates have to do with the arrangement of the electrons in the outside (incomplete) shell of the atoms, since it is these electrons which determine the properties and behavior of the various atoms toward one another. When the number of outside electrons is small their arrangement is determined by the magnetic attractions beneath them, but as the number increases, especially when the outer shell is nearly completed, the electrostatic repulsion of the underlying electrons and those in the outside shell become predominant in determining the positions. The chemical behavior of an element is conditioned by its tendency to share pairs of electrons with other atoms, whereby the octet (somewhat crudely represented by the corners of a cube) arrangement for each atom is completed. Lithium, for example, contains only one electron in its outside shell, and it would be impossible or very difficult for it to acquire seven more electrons from another source, since this would make it correspond to a negative ion with seven charges. It easily gives up its single electron (for example to complete the octet arrangement in an element like fluorine whose outside shell already contains seven electrons) and thus becomes a positive ion on account of the charge of its nucleus. Fluorine, on the other hand, since it has seven electrons in the outer shell and strives to complete its octet arrangement by acquiring another electron, does not lose electrons from its shell (is never electropositive). By gaining an electron it assumes the octet arrangement in the stable (non-reactive) element neon. Similarly sodium, which has one more electron in the outer shell than neon, readily gives up this electron and reverts to the neon type. Thus the most stable arrangement of electrons is the octet, and other arrangements tend to assume this form by sharing their electrons in order to complete one octet or both of them, and in organic compounds the number of pairs of electrons shared by two octets corresponds to the usual valence of the element. In inorganic compounds the valence is not in general equal to the number of pairs of electrons shared by two octets. Some remarkable physical similarities are noted in the properties of substances not chemically related but which have similar arrangements of electrons in their molecules. For example, nitrogen and carbon monoxide have the same electron arrangement, and the physical properties of these two gases are practically identical: the same is true of carbon dioxide and nitrous oxide (laughing gas), though no chemical analogy is apparent without this ingenious theory of atomic structure. Such compounds are called "isosteric," and the term is applicable to radicals or groups of atoms as well as to molecules, though isosteric groups are not necessarily chemically similar. For example, sodium ions and neon atoms are isosteric, but have no physical or chemical similarity. Another type of relation-

ship may be illustrated as follows: argon and nitrogen gases resemble each other closely and argon is isosteric with chloride ion; hence cyanogen ion, which is isosteric with nitrogen, should resemble closely chloride ion. In fact the properties of the two classes of salts are very similar. It is impossible to go further into the consequences of the bold hypotheses advanced by Langmuir on account of limited space, but it may be said that this series of papers constitutes one of the most notable contributions to physical science for many years; the fruitfulness of the ideas is only just beginning.

W. A. Noyes, in his address accepting the Willard Gibbs Medal awarded him for distinguished work in science, reviewed the conceptions of valence which chemists have held since the nineteenth century, and advances the theory that a valence bond consists of an electron from one of two electrically neutral atoms rotating around two positive nuclei located in some part of the two atoms. He shows from a calculation of the known volume of sodium atoms that the kinetic theory would lead us to expect an orbital rotation of an electron during a period of the same order of magnitude as the vibrations which produce the sodium line in the spectrum. He considers, from this and other evidence, that it is more probable that atoms contain rotating electrons than that the electrons are in a static condition. The fact that halogens are sometimes positive and sometimes negative and that the oxygen atom of amine oxides is partly positive also points to a transfer of electrons which takes place in some other manner than that supposed by Langmuir and G. N. Lewis. His views are thus quite opposed to those set out in the preceding paragraph, and it is therefore evident that the matter of atomic structure is by no means near a settled question.

An ingenious adaptation of the thermionic amplifier used in radiotelegraphy has been made by Hall and Adams, who insert the instrument in the position usually taken by the telephone in ordinary determinations of electrical conductance. The instrument, which acts as a relay in that variations in one circuit set up amplified variations in another circuit coupled unilaterally with it, enables the audibility current to be greatly reduced, thus decreasing the possibility of polarization in the cell by current passing in it. With this arrangement it is possible to reduce the current to about 1 per cent of that usually employed, or to use frequencies beyond the limit of the human ear if desired.

There is a great and increasing tendency toward the adoption of physical methods in chemical analysis. The most striking development of the year is A. W. Hull's method by which a chemical analysis can be made on a cubic millimeter of material in powdered form. The substance is placed in a glass tube in the path of a beam of X-rays directed toward a photographic plate which records the diffraction pattern after an exposure of about an hour. The only apparatus required is a source of voltage, an X-ray tube and a photographic film. The method differs from other known methods of analysis by means of X-rays in that the elements in the first row of the periodic table (that is, the lightest elements) may also be determined. After the film has been developed it shows, in addition to the overexposed beam in the centre, a series of lines caused by the reflection of the rays from the

tiny crystals of the powder. Their distances from the centre of the film depend on the spacing of the planes of atoms in the crystal, and there is one line for every important plane in every kind of crystal. Substances of different crystalline form will therefore exhibit entirely different patterns; substances similar in chemical nature will in general have similar crystal structure and give similar patterns, the one being simply a magnified image of the other. The magnification, or spread of the pattern, is inversely proportional to the cube root of the molecular volume of the substance causing the reflection. Since no two substances have exactly the same molecular volume, it is easy to distinguish between those with closely agreeing volumes, as the difference is cumulative for lines far from the centre of the plate. A further distinguishing mark is the relative intensity of the various lines, which differs greatly even in the most closely related compounds. The method is able to go a step farther than chemical analysis in that it shows beyond any question the nature of the combinations existing between the various elements as well as the elements present. The nature of the combinations in a mixture such as the ordinary sodium fluoride of commerce is clearly shown by the use of this method, which establishes the presence of the acid fluoride NaHF , as well as the substance ordinarily designated by the symbols NaF . By narrowing the slits used to direct the beam of X-rays and using a smaller tube of the test material very sharp lines can be obtained in the photographs, and thus a mixture of several substances analyzed without ambiguity. Furthermore, by excessively long exposures (so as to greatly overexpose the principal lines) the presence of impurities in exceedingly small amounts can be established. As the material is not altered in any way by the passage of the X-rays, it is still available for any special tests desired after the analysis of it has been made.

A method for determining large or small quantities of iron has been devised by Hostetter and Roberts. They titrated the ferrous iron (after suitable reduction if necessary) with a very dilute dichromate solution and established the end point by the change of potential of a small platinum electrode dipping into the solution. If it was desired to estimate both ferrous and ferric iron in the same sample, the former was titrated in the usual way, then the total iron was reduced, again with electrometric control so that no excess of reducing agent was added. The presence of large quantities of acid in the solution was without effect on the sensitiveness of the method, and the salts accumulating in the course of an analysis were also without influence. Since hydrogen fluoride does not interfere, it was easy to determine both ferrous and ferric iron in a silicate in less than half an hour. Those familiar with the ordinary procedure for iron in both stages of oxidation will readily appreciate the usefulness of such a method. The precision of the method is equal to that of the best gravimetric work, the quantity of iron present may be as small as 0.28 milligrams or as large as that in a sample of pure iron. For the analysis of materials such as those required for optical glass, where the quantity of iron present is about a thousandth of 1 per cent, Hostetter has devised a method based on the color of ferric chloride in acid solutions, since as little as 0.02 milligrams of iron will give a perceptible

color to 50 cubic centimeters of 20 per cent hydrochloric acid. The method is not one of a high percentage accuracy, but is admirably adapted to the approximate determination of small quantities of iron, for example the impurities in high grade chemicals. When the quantity of iron is too large for this method, the electrometric one is applicable.

W. H. Perkin in England has extended his work on the structure of the alkaloids harmine and harmaline. He finds that the former assumption of a fused-ring system comprising a benzol, pyrrole and pyridine nucleus is not satisfactory, and reports a new series of experiments which shows that harmine is not a derivative of quinoline or iso-quinoline. Bearing in mind the formation of nitroanisic acid from harmaline, and that in the ring system the order of fusion is benzene-pyrrole-pyridine, two structural formulas are given with the methyl group in the pyridine nucleus, between which it is not possible to choose definitely. He has also published an investigation of cryptopine and its derivatives.

Kehrmann has taken up the study of diphenyl-dihydroacridine in an effort to establish the hypothesis of hexavalent carbon. This substance and its amino derivatives possess the character of leuco-derivatives, and is similar in structure to thiodiphenylamine. It gives on oxidation a new and interesting class of highly colored substances containing a chromogen analogous to phenylphenazonium. Structural formulas are given in which a hexavalent carbon atom is present. Unfortunately only a brief abstract in *Archives de science physique et naturelle* is available in this country, and details are therefore lacking.

Michael has continued his work on the relation between the chemical structure of organic compounds and their reactivities. Reactivity and instability are sharply differentiated, since the latter is due to incomplete neutralization of the atomic forces in the molecule, i.e., incomplete conversion of their free energies into bound energy, and should apply only to the behavior of a compound toward physical forces acting separately or simultaneously. Reactivity refers to the behavior of a certain atom or group of atoms in a given chemical system. It is the result of the sum total of changes in both free and bound chemical energy in all the atoms of a system which manifests itself at a certain atom or group. Many experiments have been performed on the reaction between carbonyl derivatives and semicarbazide, with the object of arranging the carbonyl compounds in the order of their reactivity toward the chosen reagent. The affinity constants in water and in alcohol were not the same, and he concludes that it is quite as unjustified to attach an absolute relative value to the reactivity of a ketone as to the affinity constant of an organic acid: in each case we should refer to a value in a given physical and chemical system. There is no connection between reactivity and velocity of reaction in the cases studied; velocity and reactivity are distinct relations which should invariably be distinguished between in organic investigations.

CHEMISTRY, INDUSTRIAL. The dominant feature in this year's progress in Industrial Chemistry seems to be readjustment or the resumption of pre-war conditions improved however locally by a greater knowledge of the

methods followed in other places, the result of intensified study of practices made necessary by the demands of the World War. This is conspicuously the situation in such industries as those pertaining to certain metals, dyestuffs, and potassium salts.

ORGANIZATIONS. The American Chemical Society held its spring meeting in Buffalo, N. Y., during April 8-11. The annual meeting was held in Philadelphia, Pa., during September 2-8. Membership has increased until it now exceeds 14,000 persons, William H. Nichols of the General Chemical Company was continued as president during the year. The American Electrochemical Society held its spring meeting in New York City during April 3-5, when the membership was reported as 1928. Wilder D. Bancroft was chosen president. Its 36th general meeting was held in Chicago, Ill., during September 23-26. The American Institute of Chemical Engineers met in Chicago, Ill., during January 15-18, and again in Boston, Mass., during June 18-21. Arthur D. Little was president for the year.

The Society of Chemical Industry held its 38th meeting in Mansion House, London, England, under the Presidency of Henry Louis. The membership increased during the year from 4429 to 5263. The Society lost in 1919 two of its most prominent past presidents by the deaths of Sir William Crookes (1913) and Sir Boverton Redwood (1907-08) both of whom were great leaders. There were important conferences at the annual meeting on Inter-allied Chemical Federation, on Power Plant in Chemical Works, on the Production and Consumption of Sugar within the British Empire, on Dyestuffs, Synthetic Drugs, and Associated Products, on the Chrome Tanning Industry, and on Recent Developments in the Fermentation Industries.

INTERNATIONAL ORGANIZATIONS. Under the auspices of the Canadian Section of the Society of Chemical Industry, a number of chemists employed in industries, chemical engineers, research chemists, and chemists engaged in educational institutions from various parts of the Dominion met in Montreal on May 15-17 and organized the Canadian Institute of Chemistry. The Chairman of the Convention was Prof. W. L. Goodwin of Queen's University, and at a meeting held on May 21st, Prof. J. Watson Bain of the University of Toronto was chosen president.

Prior to the World War there had existed an International Chemical Council which had included representatives of the Central Empires but it had ceased to exist owing to the fact that while "German science will continue to function, the barbarous aid which it gave to the enemy armies during the war is sufficient to debar it forever from a confederation where science is to serve the progress of humanity." Accordingly in London on April 18th, an International Chemical Council was provisionally organized to cover the whole field of chemistry, including both technological and non-technological chemistry. This was followed by an Interallied Chemical Conference in Paris at which there were delegates from Belgium, France, Great Britain, Italy, and the United States out of which grew in turn at a meeting held in London during July 14-18 an International Union of Pure and Applied Chemistry and of which M. Moureu became president and M. Jean Girard,

secretary. Subsequently at a meeting of the International Research Council held in Brussels on July 22, the International Union of Pure and Applied Chemistry became officially the Chemical Section of the International Research Union. The next meeting of the Chemical Union will be held in Italy during the first two weeks of June, 1920.

NATIONAL EXPOSITION OF CHEMICAL INDUSTRIES. During the week of September 22-27 there was held in the Coliseum and the First Regiment Armory in Chicago, Ill., the fifth National Exposition of Chemical Industries. According to the *Journal of Industrial and Engineering Chemistry*, the exposition "was a tremendous success: new materials, new products, new processes, new apparatus, and new machinery—to tell of it all would be the full story of American Success, not only in its declaration, but more still of its industrial independence." At the same time as the exposition was held there were meetings of the American Institute of Mining and Metallurgical Engineers, the American Ceramic Society, the American Electrochemical Society, and the Technical Association of the Pulp and Paper Industry. The exposition itself was formally opened on the evening of September 22 with addresses by Governor Lowden of Illinois, by Dr. Charles H. Herty, Chairman of the Advisory Committee, and one by John W. O'Leary on "The Relation of the Chemist to the Manufacturer." On September 22 there was a symposium on America's Case in Chemistry, and on the day following the principal sessions of the American Electrochemical Society were held. These were continued on September 25th when there was also a Symposium on Catalysis and a Symposium on Pyrometry. On the 26th the meetings of the various societies were continued, and on the 27th, in addition to meetings of the visiting organizations, there was a Symposium on Safety in Plant and Mine. Throughout the week motion-pictures, illustrating technical processes, were shown, and also there were official visits of inspection to the exhibits and many excursions to industrial plants and historical places in the vicinity of Chicago.

RELATIONS OF CHEMISTRY TO THE UNITED STATES GOVERNMENT. The Chemical Warfare Service described quite fully in the YEAR BOOK for 1918 (p. 124) will continue in active operation according to law until 1920. Meanwhile with the beginning of the year came the gradual demobilization of the many chemical experts who from various colleges and elsewhere, had entered the service for the period of the war and the special laboratory work on the manufacture of gases carried on at the American University near Washington, was, by the end of the year, entirely transferred to Edgemoor Arsenal, Md. Under the title of "The Research Division, Chemical Warfare Service, U. S. A."¹ a very complete description of the work is given by Col. George A. Burrell who had charge of the Division. See also *Production of Gas Defense Equipment for the Army*,² by Col. Bradley, *The Development Division, Chemical Warfare Service*,³ by F. M. Dorsey, and *The Manufacture of War Gases in Germany*, by James F. Norris.⁴

¹ *Journal of Industrial and Engineering Chemistry*, vol. xi, p. 93, February, 1919.

² *Idem*, vol. xi, p. 185, March, 1919.

³ *Idem*, vol. xi, p. 281, April, 1919.

⁴ *Idem*, vol. xi, p. 817, September, 1919.

Other relations gradually diminished their activities until by the close of the year their work became practically negligible so far as this article is concerned.

Of more practical importance is the Chemical Foundation Inc. Under the foregoing name there was organized early in the year a corporation of which Francis P. Garvin became president, and which purchased under authority of an executive order signed by the President of the United States 4500 German patents from the Alien Property Custodian. In turn it was authorized to grant non-exclusive licenses to any American citizen or corporation in which 75 per cent of the stock is owned by American citizens. The charter provides that all profits over and above a small fixed return to the holders of stock shall be devoted to the advancement of the interest of chemistry and the allied sciences in the useful arts and manufactures of the United States. The capital stock of \$500,000 was issued as \$400,000 of 6 per cent cumulative preferred, to be retired from surplus income and \$100,000 of common stock limited to 6 per cent dividends.

MEDALS. On January 17th the Perkin Medal of the Society of Chemical Industry was presented to Dr. Frederick Gardner Cottrell of the Bureau of Mines for brilliant and useful research and development work in bringing about the practical and successful commercial operation of his method for smoke, fume, and dust abatement. The Willard Gibbs medal of the Chicago Section of the American Chemical Society was on September 26th conferred on Prof. William A. Noyes of the University of Illinois in recognition of his investigation on atomic energy.

EDUCATIONAL. Announcement was made in May by the vice-chancellor of the contribution of over \$1,000,000 by British oil interests for the endowment of a chemical school at Cambridge University, England. It is hoped that this endowment will permit the maintenance of a school of chemistry at that university that will be the foremost in Europe. The organization is in charge of Prof. Sir William J. Pope.

NATIONAL INSTITUTE FOR DRUG RESEARCH. Plans for founding at a cost of \$10,000,000 a national institute for drug research were presented early in the year by Dr. Charles H. Herty, the institute to have as its main object the study and preparation of such chemical compounds as are used in medicine with a view of definitely and positively passing on their merits. Until the World War, the United States has been dependent upon Germany for its synthetic medical compounds and it was urged that the time was opportune for the founding of such an institution. The plan received nation-wide endorsement from chemists, pharmacologists, and manufacturers, but as yet the foundation has not received the necessary funds with which to organize.

METALS, ALUMINUM. Owing to the fact that this metal is an easy one to work there has been an increased output of aluminum hollow ware in Birmingham, England, the chief centre of the industry in the United Kingdom. Machine processes are said to be displacing hand labor to a considerable extent in the factories devoted to hollow ware; stamping-presses are being used where the spinning lathe was formerly relied upon. The economizing of costs by standardizing models and a nearer approach to mass pro-

duction is giving a notable impetus to the industry. Prior to the war the Germans held a dominating position in the trade, nine-tenths of the imports coming from Germany, and it was estimated that the Germans were doing nearly three-fourths of the business in Great Britain. Strenuous efforts are being made by British manufacturers to supply the goods which were formerly brought from abroad. A modern factory has been established at Wolverhampton and several new enterprises have been started. In January there came a report that Norwegian electrotechnical factories had succeeded in economically extracting aluminum from Labradorite, a mineral that is found in great quantities in the western part of Norway. A new process for soldering aluminum is reported to have been invented by Charles Bingelli of Berne, Switzerland. A new metal called conducting aluminum has been invented by Dr. Georges Giulini. It is produced by putting ordinary aluminum through a patented process, by which it acquires the same mechanical qualities and capacities as bronze, copper, and brass without changing its specific weight. The fact that the new metal is a conductor will make it especially in demand in the electrical trade. The inventor anticipates for it also a market among builders of motor cars, aeroplanes, ships, and railway carriages.

MOLYBDENUM. The special and unique qualities possessed by molybdenum for the production of guns of large calibre and rifle barrels caused a sudden and imperative demand for the ore of this metal during the war. This resulted in the opening up of a number of new deposits, one of the most important of which is located in Canada. It is questionable whether the peace requirements are sufficient to justify developing other deposits until a more definite knowledge as to the normal demand is obtained.

PLATINUM. The diminished output of platinum from the Urals in Russia, due largely to the exhaustion of the deposits, has called attention more conspicuously to the Choco districts of Colombia which are still in their infancy. The war having ended, it would seem that the requirement of platinum in the manufacture of fuming sulphuric acid would be considerably reduced, but such is not the case with regard to its use with gasoline engines. There are many new uses: as a "catalyzer" platinum and its allied metal, osmium, are required in the production of ammonia from atmospheric nitrogen, to convert which into nitric acid heated platinum is also required.

TIN. With the close of the war came a declination in the demand for tin and the production from Yunnan in South China fell from 12,000 tons to 2500 tons so that the industry in that country has practically collapsed. In Siamese Malaya the production of tin ore has not been disturbed and the output is estimated to be about 1000 tons a month.

TUNGSTEN. During the war the production of tungsten ores and molybdenite throughout the world increased enormously but since the armistice, the demand has decreased. Stocks in the United Kingdom and those now on the way are more than enough to meet the requirements until 1921. Consequently the Minister of Munitions decided to terminate existing purchasing arrangements and declined to accept any deliveries of tungsten ores or molybdenite after April 30. With special regard to the South China de-

posits, while the shipments have decreased and reduction plants were closed up still it is believed that when conditions are adjusted this source will resume its activity and shipments to the United States will be resumed where it is used in the manufacture of steel for high-speed machine tools. Prior to the war the extraction of the metal from its ore was exclusively a German industry. Similarly in Portugal also during the war the selling price of tungsten ore increased from \$300-\$450 a ton to \$800 and even \$1500 a ton, but with the coming of peace the demand ceased and the industry has become dormant.

IRON. The British Minister of Munitions appointed a commission to visit the steel works in the districts of Lorraine and the Saar Valley during the spring. They reported that the various plants were worked at high pressure throughout the war, and the number of men employed was generally greater than before or after hostilities. In Lorraine, the iron and steel works suffered severely from shortage of fuel, especially during the later period of the war. Many times the blast furnaces were damped down and the steel works closed entirely for several weeks, owing to the inability of the Germans to send the coal and furnace coke required. Some of the French-owned works in Lorraine were kept at work by the Germans; others just within the French border had been idle since the beginning of the war, although the Germans made an effort to restart them. They apparently gave up the attempt, stole from the French works the bulk of the plant, tools, buildings, and stores, and destroyed the remainder. The stolen plant, etc., was installed in German-owned works in Lorraine. There was a shortage of manganese during the later period of the war, and as a substitute calcium carbide was tried with reduced quantities of manganese; but in the opinion of the committee the results were unsatisfactory as about 30 per cent of the steel so produced was scrap. The damage from bombing was slight and did not exceed \$25,000 in value. According to the report it would appear that France's acquisition of further supplies of ore will enable it to develop its future trade at the expense of Germany. It should be able to produce about 11,000,000 tons of pig iron a year with an equivalent in steel, to dispose of in competition with other countries. Before the war the resources of Germany of iron ore were approximately 3,600,000,000 tons, and those of France 3,300,000,000. The relative positions after the war are approximately, Germany, 1,300,000,000 tons and France 5,500,000,000 tons. The annual production before the war (1913) was Germany 27,000,000 tons and France 21,000,000 tons. The estimated annual production after the war is Germany 7,000,000 tons and France 42,000,000 tons. It would appear that except from France, Germany can only expect to obtain ore from Sweden or Spain, but as both these countries are actively developing their own steel industries they will probably not have much to spare. France's pre-war production was about 40,000,000 tons of coal, but its consumption was about 60,000,000 tons, the additional 20,000,000 tons being obtained from Great Britain, Belgium, and Germany. The control by France of the coal in the Saar Valley area is estimated to enable it to produce twice the tonnage formerly obtained from the Valenciennes

district. Before the war the Saar coal fields produced 17,000,000 tons annually. So that if the fuel conditions can be met satisfactorily the other difficulties will be easily overcome.

ALLOYS. A new bronze alloy, called M. bronze, which is particularly adapted for bearings, armaments, and machinery parts where a comparatively high hardness is required, and for welding and rolling has been invented in Norway. In order to satisfy different requirements the bronze is worked out in three qualities: One hard, one medium hard, and one soft. For use where an especially good quality is demanded and for ships' use there can also be produced a finer quality, like mangan bronze.

POTASSIUM. The condition of the potash industry was discussed in the YEAR BOOK for 1918 (p. 125) and outlines given of the various processes used in the United States for the production of salts of this alkali, so necessary in chemical industries. In April at the time of the Buffalo meeting of the American Chemical Society, it was said that no potash would be needed from Germany this year, and there were approximately 100,000 tons of that chemical in storage in the United States. This supply came from mines in Nebraska which had been under development for some time, and also from California. With the cession of Alsace-Lorraine to France, Germany loses the rich potash deposits of Alsace, and with them the potash monopoly of the world. The potash deposits extend 9.94 miles to the north of Muhlhausen, over a surface of more than 69.2 square miles. They are unusually rich in potash salts, much richer than the beds in the interior of Germany. They are, moreover, easier to exploit. Their thickness ranges from 12.1 to 17.7 feet. The thickness of the smaller beds in the upper layers varies from 2.6 to 4.9 feet. The first workings were begun in 1909, and in 1913 there were 12 in operation. In a period of three years the production rose from 42,420 to 287,000 metric tons, so that the production of potash in Alsace in 1913 was already one-fifth of the entire German output. The total capital invested in the potash works of Alsace amounted to \$8,187,200 at normal exchange. According to estimates made by Dr. Paul Kessler, the quantity of potash salts in Alsace amounts to nearly 1,500,000,000 metric tons, from which several hundred million tons of pure potash can be extracted. Before the war Germany exported potash salts to the value of \$23,800,000 at normal exchange. Notwithstanding this great loss the Germans were prompt in their reorganization, and a new potash law went into effect on Apr. 24, 1919. It is designed to socialize the potash industry by giving the workers a larger share in its management and profits, and by unifying its activities under government control. The provisions of the new law, which supersedes the Potash Law of 1910, vest the control of the entire potash industry in a State Potash Board. This board is composed of eight members representing employees of potash mines and factories, eight representatives of owners of such mines and factories, and 14 representatives of various other phases of the industry, including consumers, dealers, and technical experts. Italy formerly imported all her potassium salts from Germany but seeking economic independence appointed a commission to study as possible sources of potassium compounds, the

mother waters of the Italian and African salt mines and the leucitic rocks in which the central and southern parts of the peninsula are so rich. The potash beds of Catalonia, Spain, concerning which see the YEAR BOOK for 1915 (p. 132) were by royal order opened to bids for concessions in December, 1918 and in March announcement was made of the successful applicants, three in number.

SODIUM. An interesting effect of the World War is shown in the demands for caustic soda, which was used in gas masks to neutralize chlorine gas, and in consequence so pressing has been the need for this chemical in the war industries that its manufacture in the United States has doubled since 1914, and it even became necessary for a time to forbid its export. This led to the erection of a number of new plants in South America, especially in Brazil where three new concerns are now able to supply the home demands.

HELIUM. Information concerning helium, a non-inflammable balloon gas became available early in the year. According to Franklin D. Roosevelt, Assistant Secretary of the Navy. "If the war had lasted until spring, the British and American governments would have sent helium-filled rigid airships over strategic points in Germany, each capable of dropping a total of 10 tons or more of high explosives, either in a single tremendous discharge or in a number of smaller ones during its passage over a fortress or city. These airships would have carried batteries amply sufficient to repel airplane attack." It may be added that concerning the production of helium in quantity, two main problems were obvious: First, to develop methods of extracting helium from the natural gas; and, second, to determine the geologic occurrence of the gas, and so to locate adequate supplies. These problems were successfully solved by American experts, and although quantity production of helium was achieved just too late to be of value in actual hostilities, it was in itself a great accomplishment, for the world's total output of helium up to 1915 was probably less than 100 cubic feet, the market value of which was about \$1700 a cubic foot. Helium can now be produced in the United States by methods worked out by the military departments at less than 10 cents a cubic foot, and if later investigations fulfill expectations this figure will be still further reduced. See *Bibliography of Helium Literature* by E. R. Weaver.¹

NITROGEN. Subsequent to the coming of peace the several plants (see YEAR BOOK for 1918, p. 125) erected by the government for the extraction of nitrogen from the air ceased to be of service in the manufacture of nitrates for explosives and it was urged in Congress that money be appropriated to furnish power for a fertilizer plant. Representative Longworth of Ohio said: "We have not only spent \$60,000,000 on this site, but we are preparing to spend \$14,000,000 more. According to the testimony of the Secretary of War, \$74,000,000 of the people's money will be spent and can't be used for any other purpose than to aid one factory in turning out an inferior grade of fertilizer." In March announcement was made of the organization of the United States fixed nitrogen administration to take over and operate all plants to

furnish nitrogen and similar military necessities. The organization will be entirely civilian and will be under the collective control of the Secretaries of War, Navy, Interior, and Agriculture. A "fixed nitrogen research laboratory" was organized in August in the nitrate division of the Ordnance Department, with headquarters at the American University in buildings formerly occupied by the Chemical Warfare Service. The work carried on during the war on the fixation of nitrogen in the Department of Agriculture laboratories at Arlington, Va., the geophysical laboratory, and elsewhere, is now concentrated at the American University. In April an announcement was made of an organization of a syndicate of all the German nitrogen plants under the direction of the Ministry of Finance. The government, which invested heavily in this war-born industry, having secured a controlling influence and the right to fix prices, proposed to validate the syndicate by legislation and to submit a contract with the consumers to the National Assembly for ratification. Later a syndicate of nitrogen producers in Germany was organized on May 8th, as a limited-liability company under the name of Stickstoff-Syndikat. Three great groups of nitrogen producers united and formed a common agency for the sale of their products. The government is represented both on the board of directors and in the management. Under the guidance of the Ministry of Economics nitrogenous fertilizers are to be distributed to the farmers at the lowest possible prices and in quantities sufficient to make possible an increase of agricultural production.

FUEL. The absolute necessity of finding adequate methods of providing fuel to protect the world against the effects of cold, especially in Europe where the suffering has been so great during recent winters, is a problem that is proving slow of solution. The difficulty has increased recently by the growing scarcity of coal due perhaps to its ever increasing use in industrial plants, and on account of the various strikes. The only available substitute seems to be peat, concerning which, see YEAR BOOK for 1918, (p. 126). In the United States the output of peat last year far exceeded that of any preceding year and the general increase which was stimulated by the war, was shared by practically all branches of the industry. According to British authorities the scarcity of coal due to the absence of miners at the front, raised the question of coal substitutes, and peat is mentioned as a suitable alternative for low-grade fuels. Peat deposits in England, Scotland, and Wales have remained almost untouched because of the low price of coal, but war conditions, necessitating, as they have, the restriction of coal supplies, bring the possible utilization of peat to the fore. According to the estimates of those who have studied the matter, available low grade fuel in the form of peat is greater than all the world's sources of coal. In the United Kingdom peat area is estimated at 9400 square miles, while that of Canada is 37,000 square miles, of an average depth of 6 feet. Of this area, 12,000 square miles are located in the central provinces and represent the heating equivalent of 5,000,000,000 tons of anthracite. It is reported that the Canadian government has directed its attention to the development of peat, and its Department of Mines has, within the last 10 years, mapped out 58 Canadian peat

¹ *Journal of Industrial and Engineering Chemistry*, vol. xi, p. 682, July, 1919.

bogs conveniently situated with respect to inhabited and industrial centres. Peat is also available as a source of producer gas, and has proved a success. One great difference between peat and ordinary producer gas lies in the high moisture content and the greater proportion of carbon dioxide in the gas produced. Peat has a high nitrogen content, sometimes reaching 2 per cent, and is therefore a valuable source of ammonia and other nitrogen compounds. As a fertilizer, peat was first marketed in the United States in commercial quantities in 1908, and stock-food peat in 1912, and though there is still some prejudice against its use the agricultural branch of the industry has been successful and the quantity of fertilizer and stock-food peat annually produced is increasing. In England a process has been invented for utilizing ordinary household refuse such as ashes, cinders, paper, straw, and vegetable matter which can be made into fuel, thus conserving the coal supply. The process is as follows: On arrival at the disposal works the refuse is tipped into a crusher and reduced to powder. It is then lifted by an elevator and made into small blocks by means of a briquetting machine. From the briquetting machine the blocks are placed on carrying trays capable of holding approximately one ton, and conveyed by means of an overhead traveling pulley into a drying store. One day is usually sufficient for air drying, the briquettes being fairly porous and on the day following the trays containing the briquettes are dipped bodily into tanks holding a mixture of oil-tar and pitch of such a consistency as to permeate the whole of each briquette. Thence the blocks are taken to the storage bins and can be used as fuel when required. If fuel of greater calorific value be required, the briquettes, instead of being dipped are placed in a cylinder and impregnated under pressure.

MOTOR FUELS. In March the Bureau of Mines announced the development of a motor fuel which adds 10 miles an hour to the speed of airplanes and has possibilities for use in automobile racing. The liquid, a combination of benzol and cyclohexone, called hextor, is so expensive that, while of military value, it is not regarded as practical for commercial purposes. Another combination developed by the Bureau, consisting of benzol and gasoline, has been found to be more powerful than gasoline alone and is expected to prove of value in industry. The United States Industrial Alcohol Company patented in April a new fuel with an alcohol base, concerning which it is said that while all previous fuels with an alcohol base had the disadvantage of separating into their constituent elements under changes of temperature, this does not occur in the new fuel. Long tests have shown no corrosive action on the engine parts. This corporation has patented a series of fuels, all with an alcohol base. During the year at the request of the General Engineer Depot of the War Department, the Bureau of Standards made tests of several gasoline substitutes of the same general characteristics which were developed under the direction of the Engineer Depot and one of which has been designated by them as "Liberty Fuel." These tests were run only in truck and aeronautic engines, coupled to electric dynamometers. The results obtained did not differ materially from those with corresponding grades of gasoline.

ALCOHOL. The increasing demand for alcohol for power and traction purposes led to a report by the British Inter-Departmental Committee on the Production and Utilization of Power Alcohol, which was made public during the summer. It discussed the possibility of obtaining large supplies of alcohol synthetically from the products of coal distillation. The gases produced from gas retorts and coke ovens contain about one-half of 1 per cent of ethylene, and a process is being worked out for collecting this ethylene and converting it into alcohol. Use is made of the property possessed by cooled charcoal of absorbing gas, and the charcoal, when charged with the gas, is carried in a stream of molten lead, the heat of which causes it to give up the ethylene, which is then treated catalytically for the production of alcohol. It also recommended that steps be taken to increase the production of power alcohol by the extended use of the vegetable matters from which it may be obtained, such as: 1. Sugar-containing products, as molasses, mahua flowers, sugar beets, and mangolds; 2. Starch or inulin-containing products, as maize and other cereals, potatoes, and artichokes; and 3. Cellulose-containing products, as peat, sulphite wood-pulp lyes, and wood. From Sweden come reports of making alcohol from white moss, of which there are enormous quantities available. The quality of the product is said to be very good, and its cost less than spirit made from grain or potatoes. It can be easily denatured. Other sources recommended in Sweden are peat and lava. The method of extracting alcohol from peat is about the same as by sulphite. The peat is boiled under pressure with sulphuric acid, by which a sugar solution is obtained and some residue products. After the acid has been neutralized with lime, the sugar solution is made into alcohol and the peat residue collected and made into briquettes for fuel. Lava was used as a source for alcohol in the middle of last century when the potato crop failed, but it has since then been neglected.

FERTILIZERS. In addition to the growing use of peat as a fertilizer, already mentioned, there is reported the successful operation of a factory at Turk's Inlet in British Columbia where from fish offal there is made fish meal which is a valuable fertilizer, and fish oil, which is used in soap making. During the year there was an increasing demand at high prices for fertilizers in Norway and the largest Norwegian water power development company now devotes its chief attention to the utilization of electric power in the manufacture of saltpetre and artificial fertilizer, the nitrogen being obtained from the air.

PAPER. Production of a high grade white paper from cotton linters after long experiment by the Bureau of Standards was announced on April 14th by Secretary Redfield. It is believed that the process can be made profitable, opening an important new source for the production of paper and saving many thousands of pounds of material for which there has been small use hitherto, except in the making of explosives. In the *Commercial Reports* for July 31, issued by the Department of Commerce, there was published an elaborate report on "Paper-Making Materials of the Philippines" in which bamboo, cana hojo, abaca, cogon, and other plants were fully discussed, with methods given for their treatment, largely resulting from a careful study of

the subject by George F. Richmond of the Philippine Bureau of Science. In Mexico the white pine of northern Chihuahua is being used for the manufacture of paper boxes. In Europe during war times the use of paper textiles increased greatly. In Great Britain as well as in the Central Empires, the use of paper yarn as a substitute for jute and hemp attained undoubted success, while the many uses to which paper yarn was put have been given in previous articles in the YEAR BOOK for 1918 (see p. 127) in sufficient detail. During the war the paper industry naturally flourished to a considerable extent in Sweden where prices advanced owing to increased cost of labor, while the export business became more or less disorganized owing to lack of shipping. Reports from Russia show an increasing consumption of paper with decreasing local output owing to disturbed conditions. The paper mills in Grenoble, France, are reported as unable to manufacture their well known paper owing to inability to produce or to find in France sufficient pulp for their needs. In Italy the scarcity of paper has been so great that the Minister of Industry, Commerce, and Labor issued a circular calling upon editors of newspapers to decrease their consumption. Spain erected new factories in which esparto grass, vine shoots, and similar materials are being used as a source for paper. Rice straw, colored cotton rags, and waste paper are among the materials available in Egypt, none of which are suitable for making first-class papers, and their use is limited to the manufacture of cheap papers, cardboards, and wrapping papers. Papyrus, reeds, and bagasse may eventually be convertible into good white papers by new and improved methods, but meantime they are used only as additional materials for cardboard and wrapping papers.

GLASS. The American Chemical Society began in July a campaign against importing scientific apparatus from Germany, especially glassware, and it is contended that, so far as pottery and glassware are concerned, manufacturers in the United States are now able to produce goods equal to the best product of foreign make. Similarly in England where according to an article in the *London Times* of April 21, "the manufacture of laboratory glass started at Sheffield since the war has made substantial progress." Prior to the war there was no manufacture of laboratory glass in Great Britain, and the whole process, hitherto confined to Germany, had to be discovered and workers especially trained. With this object, a department of glass technology was opened in Sheffield University with the support of the government, and to-day the department is turning out work said to equal anything Germany ever produced. Also the manufacture of lenses especially designed for photography from the air was started in England, during the war. A large firm of scientific instrument makers, located at Leicester, recently enlarged its plant to meet the increasing demands for this article. Extensive tests have been carried out, and the results gained indicate that the lenses are superior to those hitherto made in Germany. The glass used in the making of these lenses is manufactured in the vicinity of the cities of Derby and Birmingham, England. From Belgium it is reported that with a few exceptions, the plate and window glass factories are in

shape to resume work. The utilization of their resources is also favored by a syndical organization which is of long standing and especially solid. In the cut-glass industry, there is possibility of partial resumption; the great factory of Val-Saint-Lambert can begin work if it can obtain raw materials.

TEXTILES. The subject of textiles and textile substitutes, concerning which see the somewhat optimistic summary in the YEAR BOOK for 1918 (p. 127) has experienced a set back. The many inventions have become less frequent and the enthusiasm has largely waned. Even from Germany comes the statement: "The promise that the new textile materials would soon be produced in sufficient quantities to provide clothing even for the civilian population of Germany has not been fulfilled, and the scanty reports still appearing hardly hide the fact that the textile substitute movement has been almost a failure." Also paper yarn now seems to be wholly unsuitable for the manufacture of clothing. It is employed exclusively in the weaving of small mats, carpets, blankets, bags, and as a substitute for leather. The great scarcity of clothing in Germany has rendered necessary the use of cloth woven of paper yarns mixed with yarns of wool, shoddy, and waste cotton. Little is heard about yarns of nettle, broom, or pine needle fibres, and their manufacture or application. The only textile material which still possesses some importance is the so-called staple fibre, and it seems that, besides the paper yarn, these staple fibres are the only ones that are produced on a large scale as a substitute for cotton. The process of their manufacture is known to be closely related to the well-known method of producing artificial silk. The cloth woven from these yarns was employed almost exclusively for the use of the army, and the expectation that the civilian population will also be benefited by the invention does not seem likely to be fulfilled soon. The raw materials for staple fibres are available in unlimited quantities; hence it is expected that when the chemicals reserved for the manufacture of explosives during the war shall be released, the production of staple fibres will be undertaken on a much larger scale, and that Germany will become largely independent of foreign countries so far as the supply of textile materials is concerned. It is doubtful, however, whether the cloth woven of staple fibres will be durable enough and whether it can be washed. From England comes the announcement of a new textile fabric, which, it is claimed, will tend to lower the present high cost of men's clothing, and which was introduced by a Pudsey manufacturer. The London agents of the inventor say that the new cloth is made entirely of silk noil or short fibres; and that, while superior in wearing properties to a pure worsted, it can be sold at the price of shoddy cloth, or one-fourth the price of the best wool fabrics. It is said to be strong and almost untearable, very suitable for hard wear, and is made in grays, browns, and blacks. The *Il Sole*, published in Milan, contained in its issue of November 21 an article on the glass industry, in which it was said that after a series of experiments made in Venice and Murano by Luigi Bisigato, felt and cloth made from spun glass are successfully produced there. A new concern, the "Vitrum," has been formed, with extensive plants at Naples, for the manufac-

ture of this felt and cloth for use as insulators in storage batteries.

PRESERVING MEAT. Announcement was made in January of the discovery of a new process for the preservation of meat by Drs. K. C. Falk and E. M. Frankel in the Harriman Laboratory of Roosevelt Hospital and perfected at Columbia University. The process consists of extracting all water from the meat by placing it in a vacuum under low temperature. The drying process, it is declared, does not coagulate the albumen or change the chemical structure of the meat in any manner. It can be kept indefinitely and has only to be soaked in water to be restored to its original weight and condition.

BEET SUGAR. This industry has long been one of the most important in France. Formerly France held first place in the world as a beet-sugar producing country, but in 1914 it ranked only fourth in Europe. Its consumption of sugar, however, steadily increased. In 1880 the annual individual consumption was 18.96 pounds; in 1890, 26.24 pounds; in 1910, 34.83 pounds; and in 1911, 37.48 pounds. The French output of refined sugar (including molasses) for 1912-13 was 877,656 tons. The consumption was 708,528 tons. Over two-thirds of the production was furnished by departments subsequently devastated by the enemy. In 1913 there were 213 sugar mills in France, while in 1917 they numbered only 61. To supply its deficit France had to import both raw and refined sugars. The government constituted itself sole purchaser of this article and prohibited imports by individuals. The colonies of Guadeloupe, Martinique, and Reunion with an annual joint pre-war output averaging 110,000 tons, were able to supply a part of the deficit. The government immediately purchased the entire production of these colonies and stored it pending transportation by vessels allotted to France by the Inter-Allied Council. The decreased output of sugar is not wholly attributable to the destruction of sugar factories. A contributing element was the reduced planting of sugar beets. A considerable part of the beet-sugar farms of northern France were bombarded heavily, with the result that the land will not be tillable for years. The output of beets has also been affected by the government control of the price of sugar, which, in turn, has limited the price of beets. In 1915-16 only 1,146,207 tons of sugar beets were grown in France, but in 1916-17 the production increased to 1,595,868 tons, owing to the average production to the hectare having increased from 18.13 tons to 23.14 tons. The normal production to the hectare was, in pre-war days, about 26 tons. The regeneration of the beet sugar industry of France will require attention. The total losses due to the war in this industry are placed at \$187,789,000. The destruction of the homes of the workmen engaged in sugar manufacturing, the reconstruction of the mills, and the transformation of battlefields into workable farms present real difficulties in the way of complete restoration of this industry. Nor is that all, for the Germans not only destroyed the factories but carried off the machinery and the designs from which it was constructed. As the planting of beets takes place in the spring and as acreage was decidedly smaller in 1919 than that required by national demands, the deficit

in sugar will continue for another year, and imports will be necessary to meet the requirements of the country.

ASPHYXIATING GASES. The subject was quite fully discussed in the *YEAR BOOK* for 1918 (p. 131) and there remains only to add a brief tag. According to an official report issued in March, up to June, 1918, the shipment of gases in bulk made to the American forces in France to be exchanged for gas shell was: mustard gas, 15 tons; chlorpicrin, 705 tons; phosgene, 48 tons. Sales of some excess gas were made as follows: England 900 tons of chlorpicrin and 368 tons of phosgene. To France was sold 300 tons of chlorpicrin and 1408 tons of chlorine, equivalent to 1126 tons of phosgene. In addition to the above, 200 tons of mustard gas were shipped to England for loading shell originally made for Russia. There were, therefore, shipped to Europe 3662 tons of gas, or its equivalent, which gas was largely loaded into shell and used by the United States troops, or those of our Allies, against the enemy. In addition to this, 18,600 Liven drums loaded with phosgene were shipped to France. These contained 279 tons of gas, and some of them were fired at the enemy. As soon as shells were available they were loaded with gas, and 25,000 shells 75 mm. calibre were shipped to France on Aug. 7, 1918. On August 9th another shipment of 50,000 shells of the same calibre was made, after which time shipments were made as fast as shell and boosters were available. At the time of the signing of the armistice a very large quantity of this most poisonous gas remained on hand and iron containers holding all that was returned from abroad and all that was in the United States were loaded on a transport and taken 60 to 100 miles out to sea and lowered over the side into water three miles deep. Rust will eat pin holes into these containers, and there will be a minute and gradual intermixture of water with their fatal contents. Under such circumstances there is no flame but a slow chemical reaction which produces two non-toxic compounds. The literature, which is considerable, includes: *The Manufacture and Use of Toxic Gases*, by William H. Walker, and *The Manufacture of Gas Defense Apparatus*, by Bradley Dewey, both of which were published by the American Chemical Society.

LITERATURE. A weekly journal devoted to industrial and engineering chemistry called *The Chemical Age*, made its first appearance in London, England, on June 21st. See "A Brief Survey of Some Recent Chemical Literature" in *Science* for September 12, concerning recently published text-books and the like on chemistry.

CHESS. Jose R. Capablanca of Havana retained his laurels as the leading chess expert of the world during the year 1919. His principal feat was the winning of the Victory Tournament of the British Chess Federation at Hastings, England, without the loss of a game. Earlier in the year Capablanca defeated Boris Kostich, the Serbian player, in a match contested at Havana, Cuba, also without meeting a single reverse. The champion added to his fame when in a tour of Great Britain he played in more than a thousand games in simultaneous exhibitions, losing less than 30.

The Western championship of the United States, played at Cincinnati, was won by Edward Lasker of Chicago. The State champion-

ship of New York again fell to the lot of A. Kupchik while title honors in the Metropolitan Chess League were again captured by the I. L. Rice Progressive Club. City College of New York won the Triangular College League championship.

CHIAPUSSO, JAN. See MUSIC, ARTISTS, INSTRUMENTALISTS.

CHICAGO. See CITY PLANNING.

CHICAGO OPERA COMPANY. See MUSIC, OPERA.

CHICAGO SYMPHONY ORCHESTRA. See MUSIC, ORCHESTRAS AND NOVELTIES.

CHICAGO, UNIVERSITY OF. An institution of higher learning founded in 1891 at Chicago, Ill., largely through gifts by John D. Rockefeller, who has continued to aid the university. In the summer session of 1919 there were enrolled 1954 graduate students, 1323 undergraduates, and 1921 professional students, a net total of 5013. In the autumn of 1919, the enrollment was as follows: Graduate, 681; undergraduate, 2531; professional, 1490; university college, 1219; a net total of 5650. There were 346 members of the faculty. Productive funds of the institution amounted to \$32,537,886 and the income for the year was \$1,874,182. The library contains 570,849 volumes. President, Harry Pratt Judson, LL.D.

CHILD LABOR. During 1919, Child Labor, in common with most of our social questions, escaped from the localizing restraint of national boundaries, and was considered as an international problem. Labor scarcity during the war had, in almost every country, made necessary the employment of children on a scale that was not permitted by pre-war standards. (See YEAR BOOK, 1918). The need for readjustment was very generally felt, and accordingly the Commission on International Labor Legislation, (vol. ii, Labor, Am. Fed. of), appointed by the Peace Conference, recommended to the Conference certain standards, which, it was hoped, could be made effective in all the nations represented. These recommendations provided that: "No child should be permitted to be employed in industry or commerce before the age of 14 years, in order that every child may be assured reasonable opportunities for mental and physical education; between the ages of 14 and 18 young persons of either sex may be employed only on work which is not harmful to their physical development, and on condition that the continuation of their technical or general education is assured."

These recommendations were formally acted upon by the Peace Conference, and on April 28, 1919, they were, in an emasculated form, incorporated in a "Sixth Labor Clause" which provides for "the abolition of Child Labor and the imposition of such limitations as shall permit the continuation of their education, and assure their proper physical development."

Again, at the International Labor Conference of the League of Nations, held in Washington, D. C., from October 29 to Nov. 29, 1919, was Child Labor one of the topics of discussion. "Draft Conventions" were adopted, from which the most important are quoted: "Children under the age of 14 years shall not be employed or work in any public or private industrial undertaking, or in any branch thereof, other than an undertaking in which only members of the same family are employed. Young persons un-

der 18 years of age shall not be employed during the night in any public or private industrial undertaking, or in any branch thereof, other than an undertaking in which only members of the same family are employed . . ."; in both cases certain exceptions are enumerated. Each nation ratifying a convention agreed to bring its provisions into operation not later than July 1, 1922.

THE SECOND PAN-AMERICAN CHILD WELFARE CONGRESS. The Second Pan-American Child Welfare Congress convened in Montevideo, Uruguay, from May 18 to 25, 1919; some 1500 persons, including the representatives from the various American nations, were in attendance. A resolution was adopted providing for the creation of an International American Bureau for Child Welfare, having its seat in the city of Montevideo; further resolutions recommended a flat 15-year age limit for working children, with compulsory school attendance up to and including that age, a 16-year limit for industrial labor, a six-hour day for all under 19 years of age, the prohibition of dangerous employment and night work for minors, and compulsory vocational instruction for children of both sexes between the ages of 14 and 18; a broad health programme was also adopted.

INTERNATIONAL CONFERENCE ON CHILD WELFARE. A four-day conference on Child Welfare standards was held in Washington, D. C., May 5 to 8, 1919, under the auspices of the Federal Children's Bureau; delegates were present from all sections of the United States, and from Great Britain, Belgium, France, and Japan. The general topic of Child Welfare was discussed, and minimum standards of age, education, physical qualifications, and wage, were decided upon for children entering employment; standards were set for hours of labor, and plans worked out for placement and employment supervision and general administration of welfare work. It was decided that these recommendations should be submitted to the nine regional conferences which were arranged for in various cities throughout the United States. A committee on Progressive Child Labor Standards was created, to act in an advisory capacity to the Children's Bureau in Washington.

THE UNITED STATES:—FEDERAL CHILD LABOR LAW. Of chief importance among Child Labor Legislation for the year is the new Federal Child Labor Law. The former law which attempted to prohibit child labor through interstate commerce regulation, was declared unconstitutional by the Supreme Court of the United States on June 3, 1918. (See YEAR BOOK, 1918). The new bill was introduced in the Senate by Senator Pomerene on Nov. 15, 1918, was adopted by the Senate (vote of 50 to 12) on Dec. 18, 1918, as Sections 1200 to 1207 inclusive, of the Revenue Act, Public Statute No. 254, 65th Congress, (H. R. 12863) and was signed by the President on Feb. 24, 1919.

The prohibitions of the new law are substantially the same as the former act, but enforcement is effected through the Federal Taxation Power; its provisions, as summarized by the conferees of the House and Senate, are as follows:—

"This amendment imposes a tax of 10 per cent on the net profits from the operation of (a) any mine or quarry situated in the United States in which children under the age of 16 years have

been employed or permitted to work during any portion of the taxable year; or (b) any mill, cannery, workshop, factory, or manufacturing establishment situated in the United States in which children under the age of 14 years have been employed or permitted to work, or children between the ages of 14 and 16 years have been employed or permitted to work more than 8 hours in any day, or for more than 6 days in any week, or after the hour of 7 o'clock P. M., or before the hour of 6 o'clock A. M., during any portion of the taxable year. Such a tax is not to apply in case of an employer relying in good faith upon an employment certificate issued under regulations prescribed by a board composed of the Secretary of the Treasury, the Secretary of Labor, and the Commissioner of Internal Revenue; nor in case of an employer who satisfies the Secretary of the Treasury that his employment of a child under the prescribed ages was due to an honest mistake of fact as to the age of such child."

This law became effective on April 25, 1919; on May 2, Federal Judge James E. Boyd, of North Carolina, made permanent a temporary injunction preventing the Atherton Cotton Mills from discharging John W. Johnson (an employee between the ages of 14 and 16) or curtailing his employment to eight hours per day. W. C. Hammer, United States Attorney for the Western District of North Carolina, appeared as "amicus curiae" but his contentions were overruled by Judge Boyd, who declared the law unconstitutional on the ground that "Congress was trying to do by indirection what it had no constitutional power to do directly." The case reached the Supreme Court of the United States on Dec. 10, 1919, but no decision had been handed down by the end of the year.

Prognostication seems to favor the law's sustenance, for precedents of prohibitory taxation have been established in the oleomargarine and poisonous phosphorus match cases. But the handing down of such a decision will leave the horizon clustered with still other complications. For since the Child Labor Law is part of the Revenue Bill, its enforcement is in the hands of the Commissioner of Internal Revenue, and funds appropriated to the Secretary of Labor for enforcement have been ruled unavailable for use until the latter has been requested to act by the former official. Most important of all, the Child Labor Law will in any event lapse with the Revenue Act of 1918, which is effective "until Congress passes an act abrogating the same," and the Revenue Act is not likely to remain in force for more than two years; at that time the Child Labor Law must be made a part of the new revenue act, or an attempt be made to enact it as a separate piece of legislation.

STATE LEGISLATION. Out of our 50 States and territories, 30, during the past year, made more effective child labor laws, or strengthened the complementary school attendance and continuation school legislation. Two States weakened their child labor laws; Connecticut enacted a provision enabling the governor to suspend night work prohibition in case of emergency, and Vermont passed a measure authorizing the Commissioner of Industries, with approval of the governor, to suspend age and hour limitations in the case of perishable products—a seemingly innocuous provision which, in effect, may permit canneries to employ children for more than

eight hours per day. Alabama adopted an eight-hour day and 48-hour week for work in all gainful occupations for children under 16, and strengthened work permit provisions. Arizona limited exemption from school attendance to children over 14 who are regularly employed, and required continuation school attendance between 14 and 16 for five hours per week. California raised minimum age for employment in general occupations to 16 (with exceptions) and prohibited employment of girls under 18 in messenger or delivery service; raised compulsory school age to 16 (with exceptions); made compulsory four hours of school attendance per week for children between 14 and 18. Connecticut strengthened work permit provisions; required evening school attendance for children between 14 and 16 who have not completed elementary school. Delaware raised compulsory school attendance to 17 (with exceptions) and required 100 days attendance at school per year for employed children under 17. Florida raised compulsory school age to include children from 7 to 16, and made compulsory attendance provisions state-wide in application. Georgia raised period of required school attendance to 6 months, required completion of the 7th grade, and abolished poverty exemptions from school attendance. Illinois raised period of required school attendance to 7 months, and required compulsory continuation school attendance of 8 hours per week, between the ages of 14 and 18 years. Iowa required continuation school attendance of 8 hours per week between 14 and 16 years, excepting on completion of 8th grade and regular employment. Kansas raised compulsory school attendance to 16 years (with exceptions). Maine raised minimum age to 15 for employment during school hours, strengthened work permit provisions, and prohibited night work for children in bowling allies and pool rooms. Massachusetts reduced hours for children from 16 to 18 to 8 per day and 48 per week; required completion of 8th (instead of 4th) grade for school exemption. Missouri prohibited employment of females under 18 as messengers, changed compulsory school age to 7-14 instead of 8-14; inaugurated compulsory continuation schools 4 hours per week for children between 14 and 16 (attendance compulsory to 18 for children who have not completed the 8th grade). Montana prohibited any employment for children under 16 during school term, strengthened work permit provisions, raised compulsory school age to 18 unless employed or completed high school, required 4 hours per week for extension school work between 14 and 18. Nebraska raised period of required attendance at school to a minimum of 12 weeks in rural districts, and made continuation school attendance compulsory between 14 and 16 years. Nevada raised compulsory school age to 18, unless employed or completed high school (poverty exemptions were retained) and required continuation school attendance of 4 hours per week between 14 and 18 years. New Hampshire made compulsory school attendance for non-English speaking minors between 16 and 21 years. New Jersey established a 42-hour week for children under 16 in districts where continuation schools were established, and required attendance at such schools of children between 14 and 16, 20 hours per week if unemployed, and 6 hours per week if employed. New Mexico raised compulsory

school age to 16, unless 14 and employed, provided for work permits for children under 16, and made compulsory continuation school attendance between 14 and 16 years, 5 hours per week. New York prohibited employment of girls under 18 operating elevators, and under 21 in transportation service, and regulated hours and night work in those occupations; required continuation school attendance between 14 and 18 years, 4 to 8 hours per week. North Carolina prohibited employment under 16 in mines and quarries, and under 14 in factories, mills, offices, hotels, mercantile establishments, etc., or in messenger and delivery service; prohibited night work in these occupations; raised required school attendance to full term and abolished poverty exemption clause. Oklahoma raised compulsory school age to 18, unless employed and completed 8th grade, and required continuation school attendance between 16 and 18 years (with exceptions). Oregon raised compulsory school age to 18 for all unemployed children, and provided compulsory continuation school attendance for children between 16 and 18 years, for 5 hours per week. Pennsylvania prohibited employment of girls under 18 in messenger service. South Carolina prohibited employment under 14 in workshop or business establishment during school hours (with exceptions) and made its compulsory school attendance provisions state-wide in application. South Dakota strengthened its child labor enforcement laws, and made compulsory attendance at evening school of illiterate and non-English speaking persons between 16 and 21 years of age. Tennessee raised compulsory school age to 16, and made it state-wide in application. Utah made continuation school attendance compulsory for 4 hours a week to children under 18, and likewise for all non-English aliens between the ages of 16 and 45; raised compulsory school attendance age to 18 for unemployed children, and extended 30-week term to apply to all districts. Washington strengthened work permit provisions, and required continuation school attendance for 4 hours per week, between 14 and 18 years (with exceptions). West Virginia prohibited employment in any gainful occupation for children under 14 (with exceptions); prohibited employment in dangerous occupations under 16; prohibited night work and established an 8-hour day, 48-hour week for minors under 16; in occupations prohibited under 14; strengthened work permit provisions.

FOREIGN. The year 1919 has seen little direct action on the child labor question in Great Britain, legislation correcting wartime abuses having been enacted the previous year. (See *YEAR BOOK*, 1918). However further legislation may be expected in the near future, for the English joint industrial conference of employers and employees reported: "The Committee are of opinion that child labor is bad in principle, and in practice tends to decrease the chances of adult employment. For these reasons, without going into details, the Committee think that the age at which a child should enter employment should be raised beyond the present limit." (14 years.) In addition the Committee recommended an eight-hour day for all persons employed, as well as the establishment of a nationwide minimum wage. Both of these measures would tend to reduce child labor, by rendering it unprofitable. The Director of the Commercial

Department of the Bureau of the Russian Socialist Federal Soviet Republic reports that Russia has adopted a 16-year limit for entrance to full time employment, and has developed a complementary educational plan. He states that when trade is resumed with foreign countries, no goods will be allowed to enter Russia that have been manufactured by child labor. Poland, according to the Programme of the Polish Minister of Education, provides that all children must attend school for at least seven years. The programme of the German Teachers' Association calls for free universal education, with maintenance and clothes for necessitous children, and the extension of common and continuation school education made compulsory for children up to 18 years of age. Mexico has enacted a new law prohibiting night work in factories and dangerous occupations for all women, and for children under 16 years of age, and prohibits night work in commercial establishments for the same after 10 o'clock at night; it limits the work of children between 12 and 16 to six hours per day, and provides that the work of a child under 12 years of age shall not be made the subject of contract.

Information on the subject of child labor and child welfare may be obtained from the U. S. Department of Labor, Children's Bureau, Washington, D. C., and from the National Child Labor Committee, 105 East 22d St., New York City.

CHILD WELFARE. See **CHILD LABOR**.

CHILDREN'S COURTS. See **JUVENILE COURTS**.

CHILE. A South American republic on the west coast extending along the Pacific to the south from Peru. Capital, Santiago.

AREA AND POPULATION. The length of this long narrow strip between the crest of the Andes and the Pacific is 2628 miles—from the Peruvian border to the southern end of South America. The average width is 177 miles. There are 23 provinces and one territory, with an estimated total area of 289,829 square miles. The population in 1907 (the last census) was 3,429,279 of which 43.4 per cent was urban. The foreigners at that time numbered about 134,524. The population January, 1918, was estimated at 3,880,854 or a density of 13.4 to the square mile. The population of some of the principal towns in 1916 was: Santiago, 397,550, (estimated in 1918 unofficially at 400,000); Valparaiso, 201,507. Concepcion, 68,902; Iquique, 45,502; Talque, 41,618; Chillan, 38,543; Antofagasta, 56,295. The majority of people are of European origin, only one-fourth being of pure Spanish stock. The Indians may be divided into three classes—the Changos, who live in the northern coast region; the Araucans, about 100,000 in number, who live on the western slopes of the Andes; and the Fuegians who live in or about the region of Tierra del Fuego. Santiago is a city of cathedrals, squares and other public works, with monuments and park systems; it is also the seat of two universities—the University of Chile and the Catholic University. Valparaiso is the second city of Chile and the seaport of the country. It is situated on the southern side of a large harbor of the same name from which there is a level stretch to the hills inland. The residential district is in the hills mainly.

MINERALS. Prosperity is largely due to the

development of natural deposits of sodium nitrate, "Chile saltpetre," the tax on which constitutes a large portion of the revenue of the State. Copper ranks next in importance as a mineral product, and besides this cobalt, gold, silver, and manganese are found. Of the non-metallic products, coal, borate, salt, sulphate, and guano are important. Coquimbo has been the scene of some development of iron ore, estimated at over 200,000,000 tons. The total value of mining products was 614,775,876 pesos (exported).

Sodium nitrate was discovered about 1809 by the Indians. Till 1830 its export did not amount to much, but after then the production increased. One of the factors of this increase was the ease with which one could get a government grant of two estacas, that is, about 72,000 square yards. This lasted till 1868. The desert of Atacama, about 500 miles long about 2000 to 6000 feet above sea level, is the scene of the activity on nitrate beds. This gives an area of 200,000 square kilometers, of which only 4 per cent had been surveyed in 1918. Chile, Bolivia, and Peru furnish the labor, and an estimate gives us the point that about 50,000 men were employed in this industry at that time. The total number of tons that this labor has extracted from the surveyed area of 200,300,000 tons, is about 50,000,000 tons. Californian and Mexican oil is supplanting coal as a fuel to work these mines. In 1915 only 34 of the 167 plants were in operation, due to war-disorganized production. When the demand for it as a munition ingredient raised the price to double its former figure, production was again stimulated. The United States, early in the war, organized a committee to supervise and regulate the nitrate production in the United States, realizing its agricultural importance as a fertilizer, as well as its munition importance. A table of nitrate production and shipment is given below:

	<i>Metric tons produced</i>	<i>Labor No. of men</i>	<i>Exportation Metric tons</i>
1914	2,463,356	43,979	1,846,783
1915	1,755,291	43,506	2,023,294
1916	2,912,681	44,234 (est.)	2,981,401
1917 .....	*	.....	* 60,800,000

* This quantity in quintals.

The nitrate situation caused a great deal of worry during the war, and domestic production was stimulated so as to release to the United States and Great Britain for other war purposes the cargo vessels necessary for its shipment. The western agricultural portion of the United States felt this particularly. For the five years preceding 1915 the average annual production of coal was placed at 1,193,406 tons, and the domestic consumption of coal at 2,667,235, and the imports at 1,473,829 tons. This latter figure has decreased considerably since the gradual introduction of oil burning machinery.

INDUSTRY. For figures on industries, see preceding YEAR BOOKS. High prices and scarcity of imported leather owing to the isolation of European products because of the war, have stimulated that branch of manufacture till in 1919 it was assuming proportions of considerable size. As an indication of what this industry can accomplish, the figures of 1898 can be recalled. In that year 3,102,888 kilos of sole leather was exported. In 1915, the exports went as low as

393,460. Since then they have risen considerably. Northern Chile manufactured more for home consumption, while southern Chile maintained the export trade. Exports of leather to the United States particularly, have increased. Agrarian industry is developing rapidly with the introduction of many refined agricultural implements imported from the United States.

RAILWAYS. It was announced in December that the Chilean Congress had authorized a contract with a Chilean-Ecuadorian syndicate for the construction of a railroad to extend eastward from Porto Bolivar, Ecuador, into Brazil. This would afford a Pacific outlet to a rich territory hitherto inaccessible. It was proposed to extend the line about 563 miles to Porto Para on the Amazon River in Brazil at a cost of about £6,000,000 sterling.

The Public Works Department of Chile in 1919 was preparing studies for important constructional work, including new railways, upon which \$2,000,000 was to be expended for equipment. The completion of the new railway between the capital, Santiago and Valparaiso by way of Casablanca was to be the first work to be undertaken and it was estimated that the cost would be approximately 45,000,000 Chilean paper pesos which, at the prevailing rate of exchange, would be £2,432,432. This line it was proposed to work by steam, but the existing line between Valparaiso and Santiago will be converted to electrical operation in the near future as a part of a larger scheme of electrification.

Other work to be carried out included the proposal of the construction of a line from Larrain Alcalde to Pichilemu, the project for a new reinforced bridge over the Maipo River, on the Paine-Talagante line, and the completion of the various plans and estimates for the railway from Los Angeles to Santa Barbara and Quilleco. It was also announced during the year that the sum of 25,000,000 pesos, gold was to be expended upon the electrification of the first zone of national railways, in which is included the Valparaiso-Santiago line.

FINANCE. The monetary unit, the peso, has a value of about 36.5 cents. Exchange rates, however, fluctuate, due to the readjustment from the war. The revenue for 1915 was £9,340,733; for 1916, £13,814,101; for 1917 (estimated officially), £9,721,000. The expenditures have been, for 1915, £9,987,438; for 1916, £11,305,498; for 1917 (estimated officially), £9,572,076. The following is the 1919 budget, in gold pesos:

<i>Departments</i>	<i>Pesos</i>
Interior	179,578
Foreign relations, etc.	1,348,562
Justice	* 11,160,000
Public instruction	136,534
Treasury	40,093,996
War	155,848
Navy	1,856,763
Industry and public works	28,772
Railways	1,832
Total gold pesos	43,796,875
Total paper pesos	201,549,472

* Paper pesos.

On Jan. 1, 1918, the external debt amounted to 31,035,820; the internal debt to 42,708,193 pesos currency. On Jan. 1, 1917, the value of the 5208 national properties was 305,216,461 pesos currency. Paper money in circulation at the same time had a face value of 177,980,119 pesos.

DEFENSE. The compulsory military service liability lasts from the age of 18 to 45, inclusive. Recruits are trained for one year, and then have a reserve service in the army of nine years, and then remain in the second reserve until their 45th year. The total strength of the Chilean army was, in 1916, 1020 officers and 17,283 men. The Chilean infantry use the 7 mm. calibre rifle (1895), the cavalry using carbines and lances. The artillery are equipped with Q. F. Krupp guns. In December, 1918, an Air Force was organized with 14 seaplanes and 50 airplanes, purchased from the British government. The principal vessels of the Chilean fleet are the *Captain Prat*, the *Esmeralda*, and *O'Higgins*—predreadnaught and armored cruisers, respectively of about 7500 average displacement tons. There are also 11 destroyers, 5 modern torpedo boats, and 2 training ships.

GOVERNMENT. By the constitution, dated May 25, 1833, as subsequently amended, the legislative power is vested in two houses, the Senate and the Chamber of Deputies. Thirty-seven Senators are elected for six years and 118 Deputies elected for three years. The executive is a President, elected by indirect vote to a term of five years. He is ineligible for a second term. He appoints a council of state, and Congress appoints a cabinet. There are five members of the council of state and six departments in the cabinet. President, Señor Dr. Juan Luis Sanfuentes, inaugurated Dec. 23, 1915.

HISTORY. There has been much comment on the attitude of Chile toward the war, and now that it is over the reasons have become more clear. She did not believe that the German military machine could be crushed, she did not perceive the economic results of a German victory clearly, and finally she had little faith in the military power of the United States. This explains why she did not take any part in the war and continued firm in her view. The result of the war has done much to raise the estimation of the United States military power in her eyes, and trade has felt a beneficial stimulus resulting therefrom. The long-standing dispute between Chile and Peru which at the close of 1918 threatened the revival of hostility is outlined with arguments on both sides in the NEW INTERNATIONAL YEAR BOOK for 1918 under the title *Peru*. The question of a plebiscite to be held in the disputed territory under article III of the treaty of Ancon was still pending in 1919 and was frequently mentioned as a subject that certainly would be one of the first to be settled by a League of Nations. The supporters of Peru's claim believed that by the nonfulfillment of article III Chile had forfeited the advantage conferred upon her by the treaty—that in fact the whole treaty had lapsed—and that even aside from this consideration a readjustment was necessary according to the principle of the Treaty of Peace that annexations by force could not be maintained. On September 18th the republic celebrated the 109th anniversary of its independence. The President and the members of the cabinet and diplomatic corps took part in the ceremony in the capital.

CHIMNEY. During the year 1919 there was completed for the Washoe Smelting Company, Anaconda, Mont., the highest chimney ever built being a brick stack 585 feet above the ground, with 60-foot top inside diameter. This new chimney was a part of a smoke treating plant

for the Washoe smelter, designed to reclaim gold, silver, copper and arsenic, which were lost in the discharge of fumes. At this plant a Cottrell electric dust-reclamation system was installed, but a greater draft was required than was furnished by the old 300-foot, 30-foot inside top diameter brick chimney. Accordingly a new stack was built about 200 feet from the old, being connected to it by an extension of the main flue, which was built of structural steel frame with brick wall. The Cottrell treating plant is located beyond the new stack, and takes the deposit of dust, which is passed through a system of treaters and furnaces. The stack stands 555 feet from the top of an octagonal concrete base 30 feet above ground level at the treater plant grade, and 33 feet above the lowest part of the rock foundation on which the base rests. This gives a height to the chimney of 585 feet 1½ inches above the main ground level, and makes it higher than the brick stack of the Tacoma Smelting Works, which, as shown by the accompanying table, is 571 feet in height. This table, in the *Engineering News-Record* of Oct. 23, 1919, gives the dimensions of the world's largest chimneys.

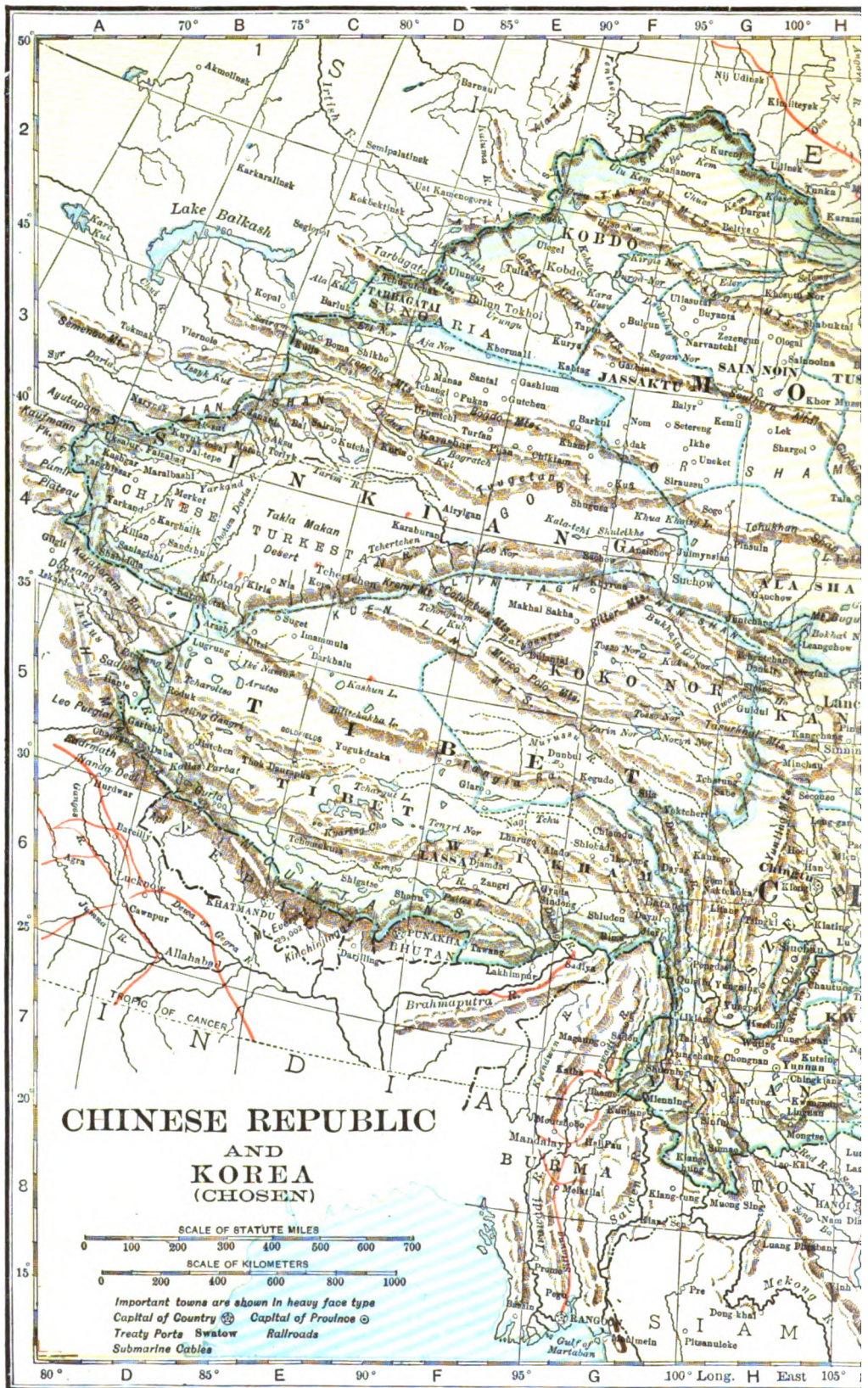
TABLE SHOWING DIMENSIONS OF THREE LARGEST CHIMNEYS

	Top Inside diam. ft. in.	Bot. Inside diam. ft. in.	Top Wall thick. in.	Bottom Wall thick. in.	Hght. above grad. ft.
New brick stack, Anaconda	60	76	22½	60	585
Old brick stack, Ana- conda	30	31 4	12½	62	300
Tacoma brick stack. Saganoseki concrete stack	23 11	39	13½	61	571
	26. 3	27 9	7	29½	570

The concrete base of the new brick stack at Anaconda is octagonal in shape, and is 89 feet outside top diameter, and is from 10 to 30 feet above the ground. On this is placed an octagonal brick section 86 feet in diameter and 68 feet high, which carries a circular tapering brick chimney. The main shaft has five different tapers, and the thickness varies from 58 inches at the top of the octagonal section to 22½ inches at the top, under the terra cotta cap. The concrete base is on good rock foundation, with a load of about 7.5 tons per square foot. The radial blocks used in the chimney were made of fine flotation tailings mixed with sand and burned at a temperature of about 1800° Fahrenheit. Some 17,000 tons of these blocks, 10,350 barrels of Portland cement, 1850 tons of fire clay, and 2700 cubic yards of sand were used in the chimney proper, and about 5100 barrels of Portland cement, 1750 cubic yards of sand, and 4700 tons of rock in the 1:3:5 concrete used for the base.

CHINA. The oldest monarchy in the world, became a republic on Feb. 12, 1912. Yuan Shih-k'ai was elected president by the first Parliament on Oct. 6, 1913, for a period of five years, being ineligible to reelection for a further period of five years. Yuan died on June 6, 1916. Upon his death, in accordance with the terms of the constitution, Li Yuan-hung became president. The present holder of this office is Hsu-Shih-chang, born in Honan, 1853, and elected president Aug. 10, 1918, inaugurated Oct. 10, 1918. The seat of the government is Peking, the former seat of the imperial government.

AREA AND POPULATION. The 18 provinces into





which the country is divided, are enumerated below. Further territory of the republic is as follows: Sinkiang (including East Turkestan), the so-called "new dominion"; Manchuria, Outer Mongolia, Inner Mongolia, Tibet, including Koko-Nor and Tsaidam. Only a loose and variable authority is exercised over Tibet and Inner Mongolia. Outer Mongolia has been recognized as autonomous since October, 1912. For summary of changes since 1897, see preceding YEAR BOOK. Estimates of the population can only be un-official, owing to the inefficient methods of the government in compiling statistics. But the following table gives a statement of the area and population of the Chinese Republic, its 18 provinces and other territories, compiled according to figures published in the *Government Gazette*, Feb. 27, 1911.

The 18 provinces of China Proper	Area: English sq. miles	Population (estimated)	Capital (Seat of Tutuh)
Chili	115,800	22,970,000	Tientsin
Shantung	55,970	25,810,000	Ch'i-nan
Shansi	81,830	9,420,000	Tai-yuan
Honan	67,940	22,375,000	K'ai-feng
Kiangsu	88,600	15,880,000	Nanking
Anhui	54,810	14,075,000	Anch'ing
Kiangsi	69,480	16,255,000	Nanch'ang
Chékiang	86,670	13,950,000	Hangchow
Fukien	46,320	8,560,000	Foochow
Hupeh	71,410	21,260,000	Wuchang
Hunan	83,880	20,580,000	Ch'angsha
Shensi	75,270	6,725,000	Haian
Kansu	125,450	3,810,000	Lanchow
Szechwan	218,480	54,500,000	Ch'engtung
Kwangtung	99,970	23,700,000	Canton
Kwangsi	77,200	5,425,000	Kuei-lin
Kweichow	67,160	9,265,000	Kuei-yang
Yunnan	146,680	8,053,000	Yunnan
Total	1,532,420	302,110,000	
New Dominion:			
Hsinchiang ...	550,340	2,000,000	Tihuaifu (Urumchi)
Dependencies:			
Manchuria ...	363,610		
Fengtien		5,830,000	Mukden
Kirin		5,350,000	Kirin
Heilungchiang..		1,560,000	Tsitsihar
		12,740,000	
Mongolia	1,367,600	1,800,000	Urga *
Tibet	463,200	2,000,000	Lhasa †
Grand total...	3,913,560	320,650,000	

* The seat of the Bogdo Khan. † The seat of the Dalai Lama.

RELIGION AND EDUCATION. Ancestor worship prevails throughout China. The three forms of religion are: Confucianism, Taoism and Buddhism, Mohammedans are found in every province of China, being most numerous in Kansu, Hsin Chiang, Chili, and Yunnan, and numbering between 5,000,000 and 10,000,000. The bulk of the people are Buddhist. The Roman Catholic natives at the end of 1916 numbered 1,790,220; the Protestant natives, 511,142; the Orthodox (Greek) natives at the end of 1915, 5587. The basis of moral teaching in the schools is Confucian. Prior to 1905 there was an old and intricate system of public examinations in the Chinese classics. On Sept. 3, 1905, however, this system was abolished, and a new educational movement for the study of western learning was instituted. Since that time, practical subjects have steadily replaced the classics in the system of instruction. Between 1912 and 1916 the number of schools was reported to have increased from 87,272 to 129,739, and the

number of students from 2,933,387 to 4,294,251. No later figures for education were available than those given in the preceding YEAR BOOK. The Boy Scout movement is fast developing in China. Over 60 schools in 1919 had Boy Scouts, with 2216 boys enrolled.

PRODUCTION. The chief occupations are agricultural and the chief crops are wheat, barley, corn, millet, and other cereals, sugar cane, rice, indigo, and fruits. One of the leading industries is silk production, which languished somewhat during the war but efforts were being made to revive it. The soya bean is widely cultivated.

The following information in regard to cotton manufactures, etc., was supplied by the United States Bureau of Foreign and Domestic Commerce in December:

With China's population of 400,000,000, all wearing cotton garments, there is no doubt about the future of the Chinese cotton-mill industry, provided it can manufacture at prices low enough to meet competition. If every person in China could afford to buy only one more suit of cotton clothes a year, 100,000 additional looms and 2,000,000 spindles would be required to produce the needed cloth. We must not, however, be carried away by these estimates, as a large share of the cotton cloth now used in China is made on hand looms by household industry. Nevertheless, there is ample room for the expansion of the cotton-mill industry, as China had in 1919 only 1,250,000 spindles and 7000 looms, while Great Britain, with only 45,000,000 people, had in 1919 58,000,000 spindles and 1,000,000 looms. The great danger is competition from other lands, unless China can rely on adequate supplies of fuel, cotton, and skilled operatives. The cost of coal in 1919 was advancing steadily owing to the high freight rates, and the remedy is the development of Chinese mines. It is necessary, also, to encourage Chinese farmers to adopt better methods of cultivation, obtain a longer staple by seed selection, and to raise larger crops. Perhaps the most important measure is the care of the workmen by providing comfortable houses, education, medical attendance, athletics and clubs. Without these, operatives are likely to become a rough class, untrained, and a danger to the district. There are needed men for foremen and managers, and it would be a good plan to send selected young Chinamen to work in foreign mills and to attend technical schools in other countries. The success of cotton factories of any kind depends upon the managers and foremen, and few Chinese have had the necessary experience, except those trained in mills under foreign supervision. The Chinese have a good share of the personality, physical fitness, common sense, and determination necessary for success, but need more specialized ability and general knowledge. It is therefore most desirable not only to train competent young men in foreign-operated mills but to establish a technical school for them in China.

RICE SCARCITY AND LABOR UNREST. The following information in regard to the failure of the rice supply was furnished by the United States Bureau of Foreign and Domestic Commerce in October: The increase in the cost of rice at Shanghai has been from \$7.60 Mexican per picul (133½ pounds) in 1913 to \$9.20

Mexican per picul in 1919. As the Mexican silver dollar fluctuates violently as compared with gold, it is not practicable to make a comparison as to the gold value of the picul unit of rice. Before the war one gold dollar was valued at more than two Mexican dollars, but for some time a Mexican dollar at Shanghai has been about on a parity with the gold dollar. Among other necessities, in addition to rice, the increase has been from 40 to 50 per cent in cotton goods, 100 per cent in silk and silk goods, 50 per cent in petroleum and candles, 150 per cent in coal, while wood has increased from 30 to 40 per cent. These estimates are based on inquiries made by the *North-China Daily News* (British) of Shanghai, which newspaper is authority for the statement that 200 years ago the price of rice was \$2 Mexican per picul. Because of the increased cost of the necessities of life, as indicated above, labor conditions in Shanghai and elsewhere in China are unsettled. In many instances, large bodies of coolies insist on increased wages in order to be able to buy sufficient food for themselves and families. Moreover, there is a growing tendency among the laboring classes in the seaport towns of China to seek increased recognition in the matter of employment, some of the trade guilds at Shanghai having developed aggressive activities to better their conditions and prospects.

MINING. Asbestos is mined in the Szechwan province of China, from where it is shipped to Chungking at a cost of \$.75 per 100 lbs. In the Shensi province there is said to be a good mine, and also one near Paotingfu, but transportation facilities are poor. There are several mines located in the vicinity of Peking, but the fibres are very brittle and the product is used locally. In 1919 there was a growing tendency to develop the domestic resources. In 1918, the imports of asbestos were valued at \$148,837.

COMMERCE. Figures for the whole of China were not available. The following table shows the value of the import and export trade of Shanghai with foreign countries in 1918:

Countries	Imports	Exports	Total
British India.	\$5,759,851	\$4,979,037	\$10,738,888
Canada	9,270,403	4,831,590	14,101,993
Dutch Indies.	6,162,903	1,248,292	7,411,195
France	1,611,878	35,999,322	37,611,200
Great Britain	55,012,326	26,756,753	81,769,079
Hongkong ...	26,126,113	18,977,066	45,103,179
Italy	408,742	11,494,047	11,902,789
Japan	98,959,679	65,952,918	164,912,627
Russia	931,462	4,105,272	5,036,734
Singapore,			
Straits Settlements, etc.	7,869,764	2,948,638	10,818,402
United States	40,150,094	56,995,460	97,145,554
All other countries	4,193,498	5,851,550	10,045,048
Total ...	\$256,456,713	\$240,139,975	\$496,596,688

Chinese foreign trade may be indicated in haikwan taels, which had an average value of \$.62 in 1915, \$.83 in 1916, and \$1.19 in 1917, the value fluctuating with the price of silver. The imports for 1917, in haikwan taels were: opium, 6,241,992; cotton goods, 158,950,267; woolen goods, 3,676,815; metals, 25,137,741; rice, 29,584,093; cigarettes, 31,263,027; coal, 15,041,834; fish, 14,144,735. The export for the year 1917 were: yellow beans, 15,274,479; bean cake, 23,758,075; raw cotton, 20,035,862; oils, vegetable, 29,721,732; silk, raw and hmd., 79,148,603; cow and buffalo hides, 17,357,572; tin, 12,204,-

877; tea, 22,107,687. The share of the British Empire in the foreign trade of China was 27.81 per cent; Japan 43.05 per cent; Russia, 6.83 per cent. The net imports in pounds sterling for 1917, were 119,072,400. For 1916, they were 86,067,833, while the exports for 1917 were 110,301,853, and for 1916, 80,299,561. There has been an increase in the exports of wheat and salt, also, more bristles were exported in 1918 than in 1913 or in 1917. Kerosene, both American and Japanese, appears as nil in the net foreign imports, owing to the excess of re-exports over gross imports. Japanese cigarettes have recovered from the slump of 1917 but their increased sale is more an indication of the greater number of Japanese residing in the provinces than of victory over competing brands. Emphasizing the effect of the exchange, the following statistics of the trade of the port of Chefoo for the year 1918 as compared with 1917, are submitted, with values stated in United States currency; although these amounts, when stated in haikwan taels, show a steady decline, an increase is shown when they are converted into United States currency:

Imports and exports	1917	1918
Imports of foreign goods:		
From foreign countries.	\$9,134,178	\$7,594,669
From Chinese ports...	3,457,582	3,821,371
Total foreign imports.	\$12,591,760	\$11,416,070
Reexports of foreign goods:		
To foreign countries ..	\$498,915	\$351,855
To Chinese ports	4,198,886	4,326,206
Total foreign reexports	\$4,697,801	\$4,678,101
Net total foreign imports	\$7,893,959	\$6,737,969
Imports of Chinese products.	\$10,736,608	\$12,119,756
Reexports of Chinese products:		
To foreign countries...	\$263,090	\$261,193
To Chinese ports.....	1,137,327	1,010,559
Total Chinese reexports	\$1,400,417	\$1,271,752
Net total Chinese imports	\$9,336,191	\$10,848,004
Exports of Chinese products of local origin:		
To foreign countries...	\$3,579,535	\$5,241,365
To Chinese ports	12,068,402	13,959,873
Total exports of local origin	\$15,647,937	\$19,201,238
Gross value of the trade of the port	\$38,976,305	\$42,737,064
Net value of the trade of the port	\$32,878,087	\$36,787,211

It was apparent that American manufacturers and exporters of cordage were not supplying a very large part of the demand in China. In 1918 only about \$20,000 worth of the total cordage import, valued at over \$800,000, was furnished by the United States. In iron and steel products the United States, Great Britain and Japan in the order named, were supplying the demand. Among the matters on which resolutions were formulated, as a result of discussions at a recent meeting of the British Chamber of Commerce in Shanghai, were: That the policy of the open door should be reaffirmed; that there should be an international agreement for the abolition of the spheres of influence and

for the development of the Chinese railways, under efficient management; urging the Chinese government to establish a uniform currency of dollars and subsidiary silver and copper coins; that the promulgation of a law protecting trademarks and copyrights used in China should be expedited; that the establishment of stable government, a satisfactory code of laws and arrangements for the effective administration of such laws are necessary preliminaries to the abolition of extra-territoriality; that guarantees should be obtained from the Chinese government that no other form of inland taxation shall be substituted for "likin" if that tax is removed in return for an increase in the import duties; urging the British government to remit a portion of the Boxer indemnity in order to aid British educational institutions in the Far East; that the British government should give immediate effect to the various measures agreed upon by the International Opium Convention in 1912 without waiting for their ratification by other countries; that British firms in China should provide their staffs with facilities for learning the Chinese language; that an organization should be subsidized for the development of British publicity work in China through the diffusion of general and commercial news.

SHIPPING. During 1917, 213,473 vessels of 86,907,049 tons, entered and cleared Chinese ports. Of these, 3609 were American; 34,902, British; 328 French; 233 German. At this time there were also 87 steamships engaged in Chinese coastwise trade, of which 27 were Chinese-owned, and of the 1077 vessels, with an aggregate tonnage of 76,425 in inland waters, only one-fifth were owned by the Chinese. Chinese coastwise trade in 1917 gave a total of 72,055 entries of 32,418,225 tons, and 73,775 clearances of 32,362,879 tons. These were, in order of their amount, as follows: Chinese, British, Japanese-American, and Russian.

RAILWAYS. In 1919 there were 6000 miles of railway open to traffic in China (including 1857 miles in Manchuria) of which about 1300 miles had been constructed by British enterprise and British capital. There were 2273 miles under construction in 1917-18. The receipts from all the railways for the first half of 1917 amounted to 6,764,176 pounds sterling. The following information was supplied by the United States Bureau of Foreign and Domestic Commerce on December 11th: Railway construction has been in abeyance since 1914, and although conditions at present are too unsettled to promise any immediate resumption on a large scale, plans have been laid for several extensive schemes. Consequently, a brief review of the proposals already mapped out in Southwest China should be of interest to investors, railway contractors, and manufacturers of railway material.

Railway construction south of the Yangtze has not, up to the present, kept pace with that in North China, where there are few navigable waterways. In the South, on account of many excellent rivers, the need has not been so urgent. The railways south of the Yangtze already constructed or under construction are:

(1) Shanghai-Nanking Railway.—Connected through the Tientsin-Pukow Railway with the railway systems of North China. Length 204 miles. (Completed.)

(2) Shanghai-Hangchow Ningpo Railway.—Length 218 miles. (Completed from Shanghai

to Hangchow, 118 miles, and from Ningpo to Pokwan, 60 miles, and a mile or two from Hangchow toward Pokwan.)

(3) Changchow-Amoy (Changhsia) Railway.—Length 20 miles. (Completed.)

(4) Swatow-Chachowfu (Chaoshan) Railway.—Length 26 miles. (Completed.)

(5) Canton-Kowloon Railway.—Length 111 miles. (Completed.)

(6) Sunning Railway.—Towshan to Kongmoon. Length between 80 and 90 miles. (Completed.) Extension from Sunning to Yeung-kong has been partly constructed and a branch to Canton has been surveyed.

(7) Canton-Hankow (Yueh Han) Railway.—(Partly constructed.)

(8) Canton-Samshui Railway.—Length 30 miles. Branch of Canton-Hankow Railway. (Completed.)

(9) Yunnan Tongking Railway.—From Yunnanfu to Haifong. Length 634 miles, of which 289 are in China. (Completed.)

(10) Nanchang Railway.—Kiukang to Nanchang. Length 80 miles. (Completed.)

(11) Changsha-Chuchow-Pinghsiang Railway.—Length 65 miles. (Completed.) The Changsha-Chuchow section, length 33 miles, is to become part of the Canton-Hankow Railway.

It is advisable to remember that the railways already in existence have wrought remarkable changes in the habits and industry of the people. Regions which are not accessible to and have not been opened up by railways form an interesting contrast in this respect. Lack of easy communications has caused each district to grow all its own requirements, and the interchange of commodities grown in different districts has been limited. It is not to be expected, therefore, that a new railway would be immediately remunerative in provinces such as Yunnan and Kweichow, which have always been handicapped by lack of communications. But experience in North China shows that the Chinese are not slow to see the advantage of growing in each district the crops most suitable to that district and interchanging them for the produce of other districts. The provision of good means of communication is also likely to lead to the growing of produce on land at present unproductive, and to a more intensive cultivation, and possibly to the introduction of irrigation schemes. The building of railways is conducive to industrial development, and possibly to mining development, in both Yunnan and Kweichow, thus providing freight for new railways. Moreover, the railways run through well-populated country, and an immediate passenger traffic is assured. Within the next 25 years it may be expected that 50,000 or even 100,000 miles of railway will be built, linking up all the principal ports of China. The Canton-Samshui line earns approximately £4,500 (say \$22,000) per mile per annum despite steam-launch competition. Connected with the schemes of railway construction in the Canton district is the project for making a deep-water port 10 miles between Canton and Samshui and connecting the latter port with all the railways running to Canton.

During 1919 a statistical summary was published anticipating the annual report for 1918 of the Ministry of Communications. The financial results for the year were extremely satisfactory as indicated below:

	1918	Compared with 1917	
		Increase	Decrease
Operating rev....	\$77,652,153	\$13,778,449	.....
Operating exp....	34,322,615	4,282,051	.....
Net operating revenues....	\$43,329,538	\$9,496,399	.....
Income debits....	\$11,033,562	.....	\$2,269,878
Income credits....	1,209,144	108,647	.....
Net income deb.	\$9,824,418	.....	\$2,378,525
Surplus for the year	\$33,505,120	\$11,874,924	.....

The item of operating expenses contains \$1,777,422 for depreciation of rolling stock. The operating ratio was slightly over 44, compared with 47 in 1917 and 52 in 1916. Net operating revenues represent a return of 10.4 upon the cost of road and equipment, and were sufficient to cover net income debits more than four times. The surplus for the year was equivalent to 29 per cent upon the funds which the government had invested in the properties out of its own funds. Out of surplus, \$3,967,487 was invested in Additions to Property and \$1,617,811 was used in retiring funded debt. By these means and the investment of other funds, the government equity in the property was increased during the year by \$7,644,488.

The report shows an increase in the length of line by 28 kilometers only. Seven locomotives were purchased and 21 freight cars were constructed. In addition, 200 freight cars were leased upon a more or less permanent basis. Locomotive performance increased from 43,772 kilometers per year to 47,512. Passenger coach performance increased from 97 passenger kilometers per seat per day to 103, and freight car performance, measured in "ton kilometers per ton of carrying capacity per running day" increased from 49.1 to 64.5. Average train load showed an increase from 244 to 257 long tons. Train load showed a consistent increase since the first statistics were compiled. Also the average haul per ton had been steadily increasing, from 165 kilometers in 1917 to 184 in 1918. In 1915 this figure was 141 kilometers. Passenger traffic exhibited similar tendencies.

The season of 1918 was remarkably favorable for a good showing and a similar improvement in 1919 could not be expected, but estimates indicated that the 1918 figures would be exceeded comfortably in 1919.

FINANCE. The silver dollar (yuan) is the monetary unit, and is equivalent to .644+ of the haikwan tael. The haikwan or customs tael is a unit of weight, varying with the price of silver, and is somewhat heavier than the various local taels. The British and Hongkong silver dollars are current in the country. To continue the war against the South, the Tuan Chi-jui administration borrowed in reckless amounts from Japanese sources. This made the discreditable conditions generally associated with national finance in China even worse in 1919, though things were expected to improve under the republican administration. The national budgets compiled in the last 20 years, and published at irregular intervals, left much to be desired, and even now, the amount of public revenue is not definitely known. The following statements represent official estimates in dollars: Revenue for 1916, 472,838,584; expendi-

ture, 472,838,584. In 1913, the revenue was 333,943,482 dollars, and the expenditure 642,237,076, leaving a deficit of 308,288,594 dollars. Duties were fixed in the autumn of 1918 at specific rates calculated on a basis of 5 per cent of prices ruling during the period from 1912 to 1916 inclusive. The Entente powers agreed to postpone payment of "Boxer Indemnities" for five years from Dec. 1, 1917. In 1918, \$9,603,908 were collected for Chinese customs. The foreign debt secured on imperial revenue outstanding Dec. 1, 1916, amounted to £171,976,000. The debt has since been increased by over 200,000,000 yen, borrowed from Japan, in addition to many secret loans, of which little is known.

FINANCIAL AGREEMENT. An agreement in respect to Chinese loans was effected at Paris on May 12th by American, French, British, and Japanese bankers. Provision was made for the entry of Belgium later. Acting upon a suggestion from the United States they decided for a combination of these banking groups for the making of financial, administrative, and industrial loans to China.

DEFENSE. Exact information in regard to the strength of the Chinese army is not at hand, and cannot be obtained. Plans for the creation of a modern army, made in 1905 and 1906, planned the formation of 36 divisions in the provinces, with a strength of 10,000 each. The revolution in 1911 did not allow these plans to be completed. It was reported in 1916 that the War Office was in control of 204,000 men under arms, and that the rather independent provincial generals had at their disposal about 337,000 men. Under the pretext of forming an army to take part in the war, the War Participation Bureau was organized. It has accomplished little other than to increase the danger from militarism in China. The navy includes the protected cruiser *Hai Chai* (4300 tons and 24 knots), three protected cruisers, each of 3000 tons, and of 19.5 knots speed; two protected cruisers of 2600 tons each, and various small craft. There are no naval bases of any importance, but the formation of several is contemplated. Existing dockyard facilities are obsolete and inadequate, but there are some building and repair facilities.

GOVERNMENT. The executive head of the government is the president. There is a vice-president and a legislature of two houses, the Senate containing 264 members, and the House of Representatives, 596 members. Nine members compose the cabinet, and its premier is nominated by the president, the other members being appointed by the premier with the approval of the president. The president in 1917 was Li Yuan-hung, who since the previous year had been involved in the struggle with the cabinet of Tuan Chi-jui over constitutional differences. Tuan's policies received the support of the northern generals, and the president was obliged to dissolve Parliament in June. In the following month, a great and unsuccessful effort was made to restore the monarchy. Tuan became again Premier and Feng Kuo-chang became acting-president. During this time an independent military government was set up at Canton, under Dr. Sun Yat Sen.

The president, Hsu-shih-chang, was elected to office Aug. 10, 1918, and was inaugurated Oct. 10, 1918. The cabinet appointed January, 1919, was composed as follows: Premier and Minister of the Interior, Ch'ien Neng-hsün; Minister of

Foreign Affairs, Lou Tseng-Tsiang; Minister for War, Chin Yun-P'eng; Minister of the Navy, Liu Kuan-Hsung; Minister of Finance, Kung Hsin-Chan; Minister of Education, Fu Tseng-hsiang; Minister of Justice, Chu Shen; Minister of Communications, T'sao Ju-Lin; Minister of Agriculture and Commerce, T'ien Wên-Lieh, and Chief of General Staff, Chang Huai-Chih. See **ROCKEFELLER PHILANTHROPIC BOARDS.**

HISTORY

RELATIONS WITH JAPAN. On Feb. 14, 1919, China was informed by Japan that if she accepted Japan's demands at the Conference and did not reveal secret agreements with Japan the latter Power would pay the balance of the loan to China amounting to 17,000,000 taels. Otherwise Japan would insist upon immediate repayment of the 3,000,000 taels already loaned. On March 15th the agreements between China and Japan were made public. These consisted of three notes exchanged between China and Japan on Sept. 24, 1918, which supplemented the treaty and notes of May, 1915. They named new railways for Japanese capitalists to finance in China proper, as well as in Manchuria and Mongolia; specified railways in Shantung which the Japanese might finance in order to connect them with the main lines of north China, and laid down the conditions under which the Japanese might cooperate with China in the affairs of Shantung. Meanwhile by the treaty of 1915 China had bound herself to recognize all matters that might be agreed upon between the Japanese government and the German government respecting the disposal of all rights and interests and concessions possessed by Germany in Shantung. After this treaty was signed the Japanese government announced that the territory of Kiao-Chow would be returned to China on condition that its bay should be open as a port and that the municipal concessions should be under exclusive Japanese jurisdiction. Other concessions were granted by China and the lease of Port Arthur was extended.

The representatives of China at the Peace Conference were as follows: Lu Chieng-tsang, High Commissioner; Chen Ting Thomas Wing, ex-Minister of Agriculture; Hu Weh-teh, Minister at Paris; Alfred Sze, Minister to London, and Dr. Wellington Koo, Minister to Washington. Relations with Japan became strained soon after the opening of the Conference, owing chiefly to the Shantung affair and the resolve of the Chinese delegates at Paris to publish the secret treaties. The Chinese delegation declared that Japan was seeking to dominate China and in proof of it they alleged an attempt of Japan to secure the right to represent China at the Peace Conference. They said that to this end the Japanese Foreign Minister in November, 1918, had asked that Japanese advisers be allowed to aid China in formulating the proposals to be laid before the Conference; also that the Japanese had warned the Chinese delegates not to disclose the secret treaties and that copies of these treaties had been stolen from their baggage while they were passing through Japan on the way to Paris. These charges were all denied. The Chinese delegates however published the secret treaties along with other Chinese-Japanese agreements. As noted under the **WAR OF THE NATIONS** the Chinese delegates re-

fused to sign the treaty on account of the clauses relating to Shantung. See **WAR OF THE NATIONS.**

CIVIL WAR. As noted in the last **YEAR BOOK** the new president, Hsu Chi-Chang who was inaugurated October 10th, declared the war at an end between the northern and southern provinces and made an appeal for union and peace. This appeal was followed on December 2d by a note from the Allied governments urging him to pursue his policy of reconciliation, and a similar note was sent by them to the Canton government saying however that its presentation did not imply the recognition of this government. Representatives from northern and southern China arranged a conference; but after it held many sessions it failed to come to an agreement and concluded on May 16th with a statement to this effect. The Allied Powers again intervened in August when a memorandum was addressed to the government by the United States, Great Britain, France, Italy and Japan, expressing their wish for an early settlement and the hope that war would not be resumed.

BOLSHEVISM. Reports of Bolshevik propaganda in China were reported during the year, as elsewhere in the East. There was frequent reference to the activities of the Reds on the Mongolian-Siberian frontier and it was reported at Peking toward the end of the year that the Bolsheviks had asked the Chinese to send them an authorized representation. They were said to have proposed to the Peking government to open negotiations in respect to the return of the Chinese Eastern Railway.

CHINDA, VISCOUNT. Japanese representative at the Paris Peace Conference. He was at that time Ambassador to London. His first important position was that of vice-minister for foreign affairs during the Russia-Japanese War. He had a long and distinguished diplomatic career, having been minister to Brazil, the Netherlands, and Russia, Ambassador to Germany, 1908-11, to the United States, 1911-16, and to London, 1916-.

CHORAL SOCIETIES. See **MUSIC.**

CHOSEN. See **KOREA.**

CHRISTIAN ENDEAVOR, UNITED SOCIETY OF. Founded in 1881 for the purpose of training young converts for church membership, this is an interdenominational society of young people. Statistics for 1919 show 77,657 societies, of which there were 51,268 in the United States, 4118 in Canada, and 22,181 in foreign countries, besides 65 floating societies, and 25 army societies. Comrades of the Quiet Hour and the Tenth Legion are other societies connected with Christian Endeavor. Comrades of the Quiet Hour numbered in 1919, 174,545, and members of the Tenth Legion numbered 52,754. Life-Work Recruits numbered 4974.

The International Christian Endeavor Conference was held for the first time in four years at Buffalo, N. Y., Aug. 5, 1919. The programme for the coming years was laid out by the president, Rev. Francis E. Clark, consisting of five main points: (1) a 50 per cent gain in membership within two years; (2) the organization of a society in every church in the country; (3) a definite goal in every State for denominational missionary gifts; (4) a field-secretary for at least part time in every State and Province; and (5) a sustaining alumni association in every union. Associate President Daniel A. Poling,

reported on the work of the Society during the war, showing that Christian Endeavor had been of great help in relieving the suffering in the war areas of Europe. More than \$200,000 was received by the committee, with virtually no appeal to the public, while secretarial services were rendered free. The Society has been active in preparing the country for prohibition. During the year 53 alumni fellowships were organized with a total annual pledge for the world programme of more than \$13,500. The report of William Shaw, General Secretary of the Society, shows the progress of the work in foreign countries: "What is true of the United States is equally true of foreign lands. Mexico and South America are stretching out eager hands for Christian Endeavor. We face a challenging opportunity in all parts of Latin America. England and Scotland have put secretaries in their home field, and have started campaigns for more than \$50,000 adequately to finance the work. From the great mission field of India, Africa, China, and Japan come most encouraging reports and requests for enlarged resources that the opportunities may be more adequately met." The officers of the Society in 1919 were: President, Rev. Francis E. Clark; president associate, Daniel A. Poling; general secretary, William Shaw; and treasurer, A. J. Shartle. Headquarters are maintained at 41 Mount Vernon St., Boston, Mass.

CHRISTIANS. A denomination, with churches in the United States and Canada, founded as a part of the great movement for religious liberty which marked the eighteenth century, and which has been the spirit and purpose of the church since then. Administration is carried on by the American Christian Convention, meeting quadrennially, composed of delegates from 71 conferences, of heads of schools and colleges, and officers of the convention and its general enterprise. To the last quadrennial convention (1919) were reported 105,310 communicants, 1204 churches, 957 ministers, and 963 Sunday schools, with 76,055 pupils. The publishing house is known as The Christian Publishing Association, Dayton, Ohio. National headquarters of the denomination are located there also. The educational institutions have been decreased by two, but the remaining ones have been better equipped, and more thoroughly organized for service: Palmer Institute and Starkey Seminary in New York; Elon College in North Carolina; Defiance College in Ohio; Union Christian College, in Indiana; Palmer College in Missouri; and Jireh College in Wyoming. Elon College and Defiance College have just increased their endowment by half a million dollars each.

The church has recently undertaken what is known as *The Forward Movement*, which has for its task the emphasizing of Devotion, Evangelism, Religious Education, Missions, and Benevolence. The financial goal is \$2,000,000.

Missionary work is carried on in Japan and Porto Rico, and was expanded during 1919. During the war the church had an active War Work Commission, and also a committee to recommend chaplains. The Commission raised several thousand dollars for use in relief work. The official organ of the denomination is the *Herald of Gospel Liberty*, while the *Christian Missionary* is the official organ of the Department of Missions.

CHRISTIAN SCIENCE. The annual meeting of The Mother Church was held in Boston, Mass., in June, 1919. Reports received showed that the progress during the year had been very favorable. Dr. Francis J. Fluno, the retiring president, was unable to attend the meeting, due to transportation difficulties between Honolulu and San Francisco, but Mr. Bucknell Young, the First Reader of the church, presided in his place. Officers elected for the following year were as follows: President, John W. Doorly, of Leeds, England; treasurer, Edward L. Ripley; and clerk, Charles E. Jarvis. President Doorly gave an address on the ideals of Christian Science, after which he announced the adoption of a resolution for the formation of the Committee on General Welfare, consisting of one member from each of the following cities: New York, Chicago, London, Los Angeles, Kansas City, Minneapolis, and Washington. Headquarters are to be opened in Boston. The Committee "shall have power to make such inquiries into the affairs of the Mother Church as the committee may decide, and it shall make such report or reports to the members of the Mother Church as it may determine." The treasurer's report for the year ending June 1, 1919, showed total receipts in the General Fund, \$774,256; Real Estate Fund, \$90,575; War Relief Fund, \$1,129,335; Christian Science Benevolent Association, \$644,219; and of the \$6840 of the Busy Bee Trust Fund, there remained at the end of the year \$2604. The membership of the Mother Church continued to increase, the admission on May 30th being the largest, with but one exception, in its history. Many new branch churches and societies were organized during the year, including those at Calcutta, India; Winterthur, Switzerland; Utrecht, Holland; and Cardiff, South Wales. There were 6289 practitioners registered in the *Christian Science Journal* during the year, a considerable increase over last year. Although inconvenienced by restrictions imposed by war and other conditions, members of the Board of Lectureship of the Mother Church delivered during the year in different parts of the world a total of 2029 lectures to audiences aggregating 1,522,856 persons. Lectures were given in China, Japan, the Philippine Islands, Australia, New Zealand, Hawaii, Alaska, Yukon, Canal Zone, France, Switzerland, and for the first time, a lecture was given in Christiania, Norway.

During the year Christian Scientists obtained a change in the school law of North Carolina to the effect that "no pupil or minor shall be compelled to submit to medical examination or treatment whose parent or guardian objects to the same."

The War Relief Committee continued active operations between June 1, 1918, and the signing of the armistice. A second party of 12 workers were sent to France, where nine relief depots were opened, where the healing ministrations of Christian Science were made available to those men in the American Expeditionary Force who cared to call for such help. Much literature was distributed through these depots. The Comité Français de la Christian Science pour les Secours de Guerre, formed of members of the Christian Science churches in Paris, continued its work of extending help from the War Relief Fund to refugees and others in France. One chaplain was appointed in the navy, and, after a change

in the army regulations, 10 chaplains were appointed in that branch of the service, six of whom were still in active service in June, 1919.

Reports from Perth, Western Australia, and Stockholm, Sweden, show great progress during the year, persons traveling hundreds of miles to attend Christian Science lectures in those cities. In London the total number of copies of *Science and Health* sold was 1759, being an increase of 417 over the preceding year, and also 11,276 copies of the *Quarterly*. The total number of periodicals distributed was 562,685, being an increase of 102,573 over the preceding year. The year was marked in Paris by the appearance of the French translation of *Science and Health*, followed by *Le Héraut de Christian Science* and translations of *Rudimental Divine Science* and *No and Yes*. The rapidly growing interest in Christian Science in France has been evidenced by the large number of letters of inquiry coming from every quarter of the country. Reports from various parts of Germany are encouraging, although the work has been seriously hindered by the war.

The Christian Science Publishing Society in Boston publishes the *Christian Science Sentinel*, *Christian Science Journal*, *Christian Science Quarterly*, and *Christian Science Monitor*, besides 67 pamphlets on various phases of Christian Science.

CHRISTMAS ISLAND. An Indian Ocean Island, 200 miles southwest of Java, whose large deposits of phosphate of lime are mainly responsible for its importance. It has an area of 43 square miles, and is nine miles long. Most of the population is engaged in the exploitation and development of the phosphate of lime deposits. Phosphate exports in 1916, 44,209 tons; in 1917, 89,889 tons. Tonnage entered and cleared in 1915, 21,852 tons; in 1916, 28,658 tons. There is an island railway. Politically, the island is connected with Singapore.

CHROMITE. Chromite, one of the most important war metals, finding an extensive use as an alloy in hardening steel in munitions manufacture, showed a greater production in 1918 than in any preceding year. Compared with 1917, there was an increase of 88 per cent in quantity and 275 per cent in value.

Besides the use of chromite in munitions manufacturing, it is used in the production of bichromite of soda, bichromite of potash, chromic acid, and chrome alum, which are used in the preparation of dyes and pigments for tanning leather.

CHUBUITE. See MINERALOGY.

CHURCHES OF CHRIST IN AMERICA, FEDERAL COUNCIL OF. See FEDERAL COUNCIL OF THE CHURCHES OF CHRIST IN AMERICA.

CHURCH OF ENGLAND. See ENGLAND, CHURCH OF.

CHURCH OF GOD. See ADVENTISTS.

CHURCH OF THE NEW JERUSALEM. See NEW JERUSALEM, CHURCH OF.

CIGARS AND CIGARETTES. See TOBACCO.

CINCINNATI, UNIVERSITY OF. A co-educational municipal institution, located at Cincinnati, Ohio. In the summer session of 1919 there were 445 students, and in the autumn there were enrolled 3476 students. The faculty numbers 350. The productive funds amount to \$1,372,984 and the income for the year was \$78,155. The library contains 92,000 volumes and 15,000

pamphlets. The university was founded in 1871. President, Charles William Dabney, Ph.D., LL.D.

CITY GOVERNMENT. See MUNICIPAL GOVERNMENT.

CITY MANAGER. See MUNICIPAL GOVERNMENT.

CITY PLANNING. In both planning and carrying out plans progress centres in (1) remedying the ills that come through lack of comprehensive city planning and (2) in zoning, or dividing cities into use, height, and area-of-lot-occupied districts. Most of the replanning thus far being executed, is designed to provide main thoroughfares proportioned to carry the traffic which careful studies indicate they will have to bear in the future. This work consists chiefly of widening existing streets and of supplying needed links by opening new streets, usually for short distances. Zoning, as now being practiced, is a fundamental of city planning, both for (1) the protection of property and the comfort and convenience of the people and (2) for the systematic planning of street systems, transportation facilities and other utilities, and other controlling factors in city life, growth and service, for wise planning is impossible unless it is known whether a section of the city is to be used for residence, business or industrial purposes, how high the buildings will be, and what percentage of the lots will be built upon. Heretofore, such city planning as has been done has dealt for the most part with single elements of the city plan. This has been due in large part to lack of coördination between the different branches of the city government and particularly to the decentralization of the engineering work of the city and the inferior authority generally vested in its engineering departments. The attempts thus far being made to rectify this lack of coördination are mostly through city planning commissions. These rarely have power to ensure that their recommendations will be carried out, or money to employ engineers and other planning experts to make the necessary studies. In fact, it would be difficult, from the governmental viewpoint, to give planning commissions such power without undermining the authority of the governing body of the city. The most promising type of city planning commission, therefore, is one that is tied well into the city government on its technical administrative side, has citizen members of weight and ability for its task, and is empowered to employ full time experts and, when occasion arises, outside consulting experts in city planning. The recommendations of such a commission have force on both the general citizenship and the city government. The number of commissions of this sort is increasing and new legislation is providing a way for still further additions. France has just joined the nations that give central supervision to city planning. The federal government of the United States has attempted nothing of the kind, and under the Constitution there would be difficulty in its exercising other than advisory or research functions. There is, however, nothing in the way of State supervision of city planning in the United States, but it has not yet been attempted, notwithstanding examples set by some of the Canadian provinces.

REPLANNING OLD CITIES. Chicago leads American cities in its work of rectifying an unplanned city or one that has grown in haphazard fashion. In addition to large sums previously provided

for increasing the traffic capacity of some of its main thoroughfares in accordance with a comprehensive plan worked out some years ago, the voters in November authorized, two to one, bond issues totalling \$28,600,000 for widening and in some cases double-decking six streets. For the costliest project \$9,200,000 was voted to be spent on Robey Street, which is now entirely blocked at nine places while at 19 places its width varies from 30 to 100 ft. All the narrow places will be widened to 84 ft. Next in cost will be \$5,800,000 to give Ashland Ave. a minimum width of 100 ft. across the whole city. The avenue is now closed at four places and varies from 42 to 100 ft. in width at 28 places. On Ogden Ave. \$5,400,000 will be spent to provide a width of 108 ft. for 3 miles between Union Park on the north side and Lincoln Park and Lake Michigan on the west side, at the same time relieving the street congestion in the loop or central business district. The sum of \$3,800,000 was voted for providing a two-story way 135 ft. wide for a mile along the Chicago River between the two levels of Michigan Ave. and the natural level of Market and Lake streets. Western Ave., now 50 to 330 ft. wide in its stretch of 26 miles, will be given a minimum width of 100 ft. at a cost of \$2,400,000. For continuing work on Michigan Ave. \$2,000,000 was voted. This will complete the two-level street for about a mile north from the centre of the city, giving a direct thoroughfare between the centre of the city and the north side. Michigan Ave. has already been widened from 66 to 130 ft. from Randolph St. to the river and to 141 ft. from there to its connection with the North Shore Drive. The upper-and-lower improvement of Michigan Ave., said Charles H. Wacker, chairman Chicago Plan Commission (*The American City*, December, 1919), "will prevent 45,000 north-and-south bound vehicles from interfering with 15,000 east-and-west bound vehicles every day." The bond issues authorized in November, like two earlier ones of the same kind, represent only the city's contribution to the cost of street widening, which Mr. Wacker says will be double the bond issues. Street widening and opening at St. Louis, in accordance with the major street plan worked out by the City Planning Commission, made progress through the year. In midsummer, Pittsburgh voted \$1,410,000 to widen Second Ave. and \$2,000,000 for the Monongahela Boulevard, extending from that avenue along the north bank of the river. A large programme is being worked out at Detroit under the City Planning Commission provided for by the new city charter. Closely allied to street widening, and aiding the movement of street traffic, is the grade-crossing elimination that has been in progress in many cities for years past—notably in Chicago, where vast sums have been spent by the railways and the city to separate railways and roadways. A tentative grade-crossing elimination plan for Detroit, looking 15 years ahead, has been laid out by the engineering and public works departments of the city through a Division of Grade Separation and Bridges, created in 1917, with an engineer locally in charge and with the aid of a consulting engineer from the University of Michigan. The estimated cost of the plan is from \$35,000,000 to \$50,000,000. Since 1900 some 40 grade crossings have been eliminated, making 58 separations of railways and highways, but there remain 245 crossings at

grade. On the basis of actual counts it is estimated that a million street cars and other vehicles pass over these grade crossings each year. This hinders traffic and thus handicaps business and industry, besides its inevitable risk and loss of life. (For detailed résumé of the Detroit grade elimination scheme, see *Engineering News-Record*, March 31, 1919.)

ZONING. For a city of 35,000 the zoning ordinance adopted by Alameda, Cal., in February, 1919, seems elaborate, but it is the result of careful studies by a consulting city planning expert who conducted 40 hearings in as many neighborhoods in order to ascertain local feeling on the subject. The zoning plan was also endorsed by the local Advisory Planning Commission and the City Manager. The ordinance, which governs new building permits only, establishes 8 use, 4 height, and 3 area or light-and-air districts. Of the use districts, Class 1, in which only one-family houses are permitted, covers about two-thirds of the residence area of the city, while Class II covers residences of any kind that are separate from stores. There are three classes of business-and-public-use districts and two classes of industrial-use districts, one of these two being for obnoxious and odor-producing industries. The latter is so located that the prevailing winds are away from the city. The four height districts cover buildings 2½, 3, 4, and 5 to 8 stories high. There is no height limits for towers, tanks, chimneys, spires, etc., covering not over a third of the lot on which they are built. To conserve air and light, the area of the lot that may not be built on in the four area districts ranges from 50 per cent in the "home area" or a single-family residence district to 5 per cent in the two industrial-use districts. At the close of the year Newark, N. J., appeared to be on the point of adopting a zoning ordinance which may be accepted as an earnest attempt to embody and improve upon the best of what has been worked out in other cities, with variations to meet local conditions. The ordinance creates 4 use, 5 height, and 5 area districts. The use districts are subdivided into (1) residence, (2) business (3) industrial, and (4) heavy industrial. Residence districts may also include hotels, churches, schools, libraries and other public and semi-public buildings other than correctional institutions; also railroad passenger stations, and buildings incident to farming and gardening. From the business district there are excluded blacksmith shops, milk bottling or distributing stations, carpet- and dry-cleaning works and various other specified industries, besides all trades and industries excluded from the industrial district. From the industrial district 36 specified noxious or offensive industries, made such by the emission of odor, dust, smoke, gas, or noise, are excluded. The heavy industrial district is reserved for any and all industries excluded from the other three but may also include those allowed in Class I except it may not contain any dwelling or tenement house. The five height districts restrict buildings to heights of 35, 50, 85, 125, and 150 ft., the actual heights in the 150-ft. district being governed by the street widths. There is no height limit on spires, steeples or grain elevators, and towers and tanks are allowed on industrial buildings. The classification of area districts governs the relation between total area of lots and area built upon, taking into account

rear yards, side yards, and inner courts, and specifying the number of families that may be housed within certain areas. The enforcement of the Newark zoning ordinance is entrusted to the superintendent of buildings and the inspector of combustibles and fire risks. Appeals may be made to a board consisting of the two officers just named, the chief engineer of the Department of Streets and Public Improvement, the health officer, and the president of the Board of Assessment and Revision of Taxes. The ordinance is not retroactive. Zoning investigations at Yonkers, N. Y., were well started in December. The general scheme of use districts proposed was to have two residential and two industrial districts. At Philadelphia, Detroit, and Cleveland, the city planning commissions were at work on zoning problems and a zoning bill for the District of Columbia was introduced in Congress. The new city planning law for Oregon, outlined further on in this article, provides for zoning. Finally, it may be noted that the practice of holding neighborhood meetings to discuss zoning schemes, has been followed in Pacific Coast cities, but is not common in other parts of the country, although general hearings, at some central point, seem to be the rule.

PUBLIC SUPPORT. To secure the public interest and backing essential if plans acceptable to the people are to be made and once made are ever to get beyond the "paper" stage, citizens' committees and joint committees representing civic and commercial organizations have been created in a number of cities. Such committees work for the establishment of official city planning commissions or give their support to existing commissions. Notable for its breadth is the Philadelphia City Planning Conference, organized late in 1919 through the coöperation of the local Engineers' Club, the local chapter of the American Institute of Architects, the Art Society and City Park Association and a score or more of other organizations. The proposed coöperative work is directed by an executive committee. Earlier in the year a Citizens' Committee on City Planning was organized at Pittsburgh. It has since appointed a consulting engineer. It will coöperate with the existing city and county planning commissions. In Texas, coöperative work was started at both Dallas and Fort Worth. The Dallas Chamber of Commerce and the City Planning Commission, working through the Metropolitan Development Commission, are trying to unite "all the Dallas business and civic organizations to meet properly the demands" caused by the rapid growth of the city "by undertaking a comprehensive, far-sighted programme of practical city planning." To this end the raising of a fund of \$35,000 annually is proposed to maintain a permanent office and employ "experienced city planning experts."

REGIONAL PLANNING. That comprehensive planning for a city should reach beyond its boundaries is well understood by engineers, and other city planners, and has been recognized in State and provincial planning legislation in the United States and Canada by giving planning authorities jurisdiction over the layout of new subdivisions for a few miles beyond the city limits. A still broader phase of the subject was considered at the Niagara Falls City Planning Conference, held in May, when a group of papers on regional planning (*Engineering News-*

Record, June 5 and 12, 1919) was presented. The principles applicable to planning for a group of related municipalities and the intervening rural districts are similar to those for a single city, but their application is more complex on account of the necessity for harmonizing the governmental organizations of the several communities and apportioning the financial obligations among the cities and towns composing a regional planning district. Summing up a paper on "Some Engineering Problems of Regional Planning," read at the conference, Morris Knowles, Pittsburgh, Pa., said: "The great engineering problem of regional planning is the comprehensive planning of all of the features with consideration of their relation to one another, so as to secure the greatest good at the lowest possible cost. Steam transportation must be developed without reference to or in unnecessary competition with electric and water transportation. Main highways must not be planned solely with a view to carrying through traffic—if, for example, a slight modification of the location of a boulevard would provide a right-of-way for a trunk sewer and avoid the condemnation of expensive additional property, it would be indefensible to fail to consider it. Sewage outlets must not be located without reference to water intakes. Stream regulation must not be studied for one purpose only, but consideration must also be given to water transportation, flood prevention, water-supply, sewage dilution and power development, so as to secure that combination of results which represents the greatest good per dollar spent for the entire region."

LEGISLATION. Oregon joined the States which have given their municipalities city planning powers. This it did by passing three laws. One makes possible an advisory city planning commission in every city and town of the State, with veto power on plots of new subdivisions—not only within the municipal limits but also six miles outside. A second law authorizes zoning by ordinances passed by city councils, but where there is a planning commission the council must require the commission to recommend the boundaries of the zones or districts and also the zoning regulations, and the council cannot take final action on zoning until the commission has filed its report. The third Oregon law establishes city council procedure for establishing building setback lines. *French City Planning Law.* The first general city planning legislation in France was enacted in 1919. It provides that within three years of the promulgation of the law city planning schemes must be in force in (1) every city of 10,000 or over; (2) all communes in the Department of the Seine; (3) all cities of 5000 to 10,000 population that show more than a 10 per cent growth between two successive quinquennial censuses; (4) settlements of any size whatever having a picturesque, artistic or historic character and listed as such by the departmental commission on natural sites and monuments. Any city planning scheme must establish the direction, character and width of streets, the location, area and character of squares, parks, etc., and the sites of future public buildings, utilities and other services. Any scheme must also lay down a programme of hygienic, archaeological and "aesthetic servitudes" and make provisions for drinking water, sewers and the disposition

of wastes. In each geographical department of France there must be, the law provides, an advisory planning commission; and at the Ministry of the Interior there shall be a superior planning commission of 30 members, ex-officio and appointed. This commission is to establish rules and regulations and give advice on all planning schemes, either of its own motion or on reference to it by the Minister of the Interior or the minister in charge of "liberated regions." When a planning scheme has been drawn up it shall be submitted to (1) the municipal council; (2) a hearing before the Council of State or other authority as required in expropriations; (3) the departmental planning commission. After this, the municipal council shall give its decision, which then goes to the state council or other state authority for final action. Approval takes the form of a declaration that the plan is a public utility. (For a few more details, see *The American City*, November, 1919). *Results in Bombay*. Under the Bombay Planning Act of 1915, the first legislation of the kind in India, 10 town planning schemes have been presented to the authorities. Six of these have been approved and some of the six have been executed. (For more detail, see *The Surveyor*, London, Eng., Dec. 12, 1919.)

WHAT CITY PLANNING IS AND IS NOT. A concept of city planning formulated by the Citizen's Committee on City Plan for Pittsburgh follows: "(1) Conformity to definite plan of orderly development into which each improvement will fit as it is needed—not the immediate execution of the whole plan. (2) Saving in cost of public improvements by business methods—not waste through unnecessary or extravagant expenditures. (3) Encouragement of commerce and facilitation of business—not the obstruction of any trade activity. (4) The development of an American city worthy of civic pride—not an imitation of London, Vienna or Paris. (5) Conservation of human energy and preservation of life, particularly child life—not merely restrictive, but also constructive welfare methods. (6) Correlation of the city's activities—not haphazard changes with no adequate returns. (7) The proper application of art to municipal improvements—not extravagant superficial beautification or vague attempts at civic adornment. (8) The rule of common foresight and prudence—not the rule of chance with ruinous expense and debt. (9) Preservation of historic buildings with their traditions—not the destruction of the old landmarks and city individuality. (10) Happiness, convenience, health, for all citizens—not merely expensive boulevards and parks for the few."

BIBLIOGRAPHY. Evans, *Town Improvement* (New York); intended as a citizen's guide; weak on water-supply and sewage disposal. *Garden Cities and Back to the Land* (London); a brief essay urging a combination of relatively small industrial towns and garden cities. See BUILDING.

CIVIC FEDERATION, NATIONAL. See NATIONAL CIVIC FEDERATION.

CIVILIAN RELIEF. See CHARITIES.

CIVIL SERVICE REFORM LEAGUE, NATIONAL. Organized in 1881, this is the only national organization devoted wholly to governmental administrative efficiency in the United States. The 38th annual meeting was held jointly with the Pennsylvania Civil Service As-

sociation at Philadelphia, April 11, 1919, at which addresses were given by Hon. Edward Keating, Hon. George R. Wales, Ethel M. Smith, Luther C. Steward, Hon. Martin A. Morrison, and Richard H. Dana, president of the League. As a result of an investigating committee into reported administrative abuses in Washington, a report was sent to President Wilson representing the incapacity of the Civil Service Commission and lack of comprehension of its task. The consequence was the reorganization of the Civil Service Commission, the President asking for the resignation of three Commissioners. The league continued its opposition to the "spoils" provisions of the 1920 census bill, especially the Veteran Preference Rider.

The Committee on Foreign Service made many important recommendations after very careful investigation, notably, that the age limit for entering the foreign service be reduced so as not to exceed 30 years; the salaries be increased; that embassies and consulates be purchased in the principal cities; that the State quota system of appointment be abolished; and that the Americanization of the consular service be completed by the appointment of salaried vice-consuls to act in the place of foreigners now serving as consular agents and clerks.

A noteworthy addition to the original programme of the League is that of applying the merit system to higher directing officials and injecting into the whole of the public service scientific business manager and efficiency experts. The officers during 1919 were: President, Richard Henry Dana; treasurer, A. S. Frissell; secretary, George T. Keyes; chairman of the council, Arthur R. Kimball.

CLAIRIN, JULES GEORGES VICTOR. French painter and illustrator, died at Belle-Isle-en-Mer, in France, in September. He was born in Paris in 1843 and studied in the Ecole des Beaux-Arts, where he was an intimate friend of Henri Regnault with whom he afterwards traveled in Spain and Morocco. Like Regnault he was much influenced by this journey in the choice of his subjects, many of which were taken from the people and countries of the East. He was classed among the last of the romantics in French painting. Travels in Italy resulted also in the painting of many Italian subjects. He was famous as the friend and painter of Sara Bernhardt, having painted a well known portrait of the former in 1873 and later pictures of her in the rôles of Cleopatra and Phèdre. He was a friend of Charles Garnier and executed a number of decorative paintings for the Paris Opera, and Bourse, and the Casino of Monte Carlo. He was especially remarkable as a colorist and possessed also the gift of skill in precise drawing. Among his paintings may be mentioned: the "Benediction of the Swords," "Allah! Allah!," "The Two Hostile Tribes," "After the Victory," "The Massacre of the Abencerrages," "The Moorish Sentinel," "Entering the Harem," a portrait of Madam Krauss, and a portrait of Mounet-Sully as Hamlet (1889).

CLARK, GEORGE CRAWFORD. Banker, died at Aitken, S. C., Dec. 29. He was born at St. Louis, Mo., Aug. 3, 1845; graduated at the College of the City of New York in 1863 and became a member of the firm of Clark Dodge & Co., of New York, and on the board of several important financial institutions.

CLARK UNIVERSITY. A non-sectarian

institution for graduate study only, at Worcester, Mass. In the fall of 1919 there were 106 students and 21 members of the faculty. The productive funds for the year amounted to \$1,484,000 and the income was \$60,230. The library under separate endowment contained 85,000 volumes. The school was founded in 1889. President, Granville Stanley Hall, Ph.D., LL.D.

CLASSICAL LITERATURE AND SCHOLARSHIP. See PHILOLOGY, CLASSICAL.

CLEARINGS, BANK. See FINANCIAL REVIEW.

CLEMENCEAU, GEORGES. Premier of France and French representative at the Paris Peace Conference. He was born in September, 1841, and passed through a varied career in his youth. He studied medicine, but was carried away by the Republicanism of the time, and on account of a manifestation against the second empire was sentenced to two months in prison. Before the war of 1870 he came to the United States where he earned his living as a writer for the press, and as a teacher in a girls' school, returning to France just before the Franco-German war. He took part in the National Assembly at Bordeaux and other events that followed the war. He is said to be the only living signer of the protest of the deputies of Alsace-Lorraine against annexation to Germany. He was member of the Chamber of Deputies from 1876 till 1893. In his political career he showed a Jacobin rigidity and hatred of compromise, and he was bitter against the spirit of opportunism which he found in the early years of the republic. He criticized the government as a mere machine for satisfying the bourgeoisie. His attacks upon the ministers were ruthless, and his power of invective won him the name of the Tiger while his success in overthrowing governments caused him to be called the Warwick of France. He made enemies of the extreme Nationalists by his vigorous onslaughts on Boulangerism, and he was a special mark for the attacks of Déroulède and other extreme nationalists. This enmity along with the irritation caused by his attacks on the Radicals for their timidity led to his leaving the Chamber where down to that time he had remained continuously, and during the next 10 years he expressed himself through the medium of the press. He fought on the side of Dreyfus with extraordinary effectiveness. In 1902 he was returned to the Chamber and he became Prime Minister and Minister of the Interior in 1906, his government lasting until 1909. During the war he was a bitter critic of delays and ineffectiveness wherever they were evidenced, and especially the policy of the government in dealing with the questions of supply and with defeatism in the rear. He proceeded aggressively to attack in his paper the various Bolo, Cailaux, Malvy, and other scandals of the time. In 1917 he stood before the public as the strong man of the day and in November of that year on the downfall of M. Painlevé he became Prime Minister. At once he displayed his characteristic energy and was believed by a large part of the French public to have been one of the chief figures in carrying on the war to success. His opponents have been among the extreme Left where he has been accused of reactionary policies.

CLEVELAND. See SEWERAGE.

CLIFFORD, MARY. Philanthropist, died at

Bristol, England, in January. She was born in England, in 1843, daughter of an English clergyman, and at an early age began to work among the poor, and to interest herself in social problems. From her study of workhouse conditions, she acquired a wide knowledge of problems of poverty, and was engaged in extensive activities in that field. She was reputed to be the real author of the Act of 1889, restraining the control of vicious or idle parents over children that they had deserted. She worked for 12 years in connection with the central committees of the Poor Law Conference, and she was president of the National Union of Women Workers, 1903-1905. She made frequent public addresses and was an excellent speaker. She was a sister of the late Edward Clifford, author of *The Life of Father Damien*.

CLIMATE. See METEOROLOGY.

CLOVER, RICHARDSON. Rear-Admiral in the United States navy, died October 15, en route from California to his home in Washington, D. C. He was born at Hagerstown, Md., July 11, 1846, graduated at the U. S. Naval Academy in 1867, and by 1891 had become lieutenant-commander. He had 22 years of sea service. He had charge of the survey of southeastern Alaska, 1885-1886; was chief of the Naval Intelligence Office in 1817; commanded the *Bancroft* in the Spanish American War; was naval attaché in London, 1900-1903; commanded the United States warship *Wisconsin* at the Asiatic station, 1904-05; was president of the Board of Inspection and Survey, 1906-08, and retired from active duty on July 11, 1908.

COAL. The uncertain conditions following the resumption of business after the war found no more striking example than in the coal industry. Government control during the emergency had aimed at an unusually large production in order to keep the industries vital to our military and naval undertakings running. The signing of the armistice lifted the burden for a while, but the situation was soon complicated by increased demands from the railroads and from industry. Added to this was the disturbance due to the strike of the soft coal miners extending from November 1 to December 10.

Union leaders had threatened to call a strike in the industry beginning November 1st in October. The differences between the operators and the miners over wages and hours of labor began to assume an ominous aspect by October 23rd. Two days later President Wilson characterized the strike as wrong and illegal but, far from reaching a solution, the problem rapidly approached a crisis, and the union leaders ignored the President's letter of warning. As a result of this, the government laid plans for a possible return of the mines to government control and the guarding of them with troops. Oct. 30 was crowded with events bearing on the situation. On that day the Senate pledged support to President Wilson, Acting President Lewis of the Mine Worker's Union despatched a telegram charging the President with usurpation of power, and Railroad Director General Hines ordered the seizure of coal in transit at the resumption of rationing.

In spite of strenuous efforts on the part of the administration, the threatened strike called on the first of November. Soft miners throughout the country quit work in unanimity that was attributed by some

organization built up among this class of laborers by the recognized use of collective bargaining in recent years. The next day the government ordered the coal miners to return to work but without success. On the fifth, President Wilson restored Coal Administrator Garfield's war power over land coal, calling him to Washington from Williams College, to the presidency of which he had returned. The day after this, the government called upon the courts to compel union leaders to call off the strike. From the beginning, the strike had been virtually without a head owing to the injunctions secured by the government. On November 11th, the strike leaders agreed to withdraw the strike order in the face of growing government opposition. There followed a considerable period of bickering, which was further intensified by Secretary McAdoo's sensational statement on the 24th of profits in the coal industry during the war.

On Nov. 26th the Cabinet reached an agreement over the wage controversy, but it was expected that the operators would not accept the proposal. Meanwhile the loss in production had forced the resumption of the war-time rules of coal-conservation early in December, followed by the cutting down of railroad schedules throughout the country. President Wilson's terms of strike-settlement were accepted by the miners on December 9th, the operators having agreed on the advance some days earlier. The strike was officially terminated December 10th. The soft coal miners resumed work but Coal Administrator Garfield resigned in protest to the terms of the settlement. The exact outcome of the settlement was a matter of speculation at the close of the year, but the restrictions due to the strike had been lifted and the mines were in operation again.

By Monday, December 15, bituminous production had approximated 70 per cent of normal. Conditions continued to improve throughout the week ended December 20th, the output for the week as a whole amounting to 86.4 per cent of normal. The trend of production during the period of the strike was as follows:

1st week (Nov. 2-8)	29.6% of normal
2d " (Nov. 9-15)	33.8% " "
3d " (Nov. 16-22)	44.3% " "
4th " (Nov. 23-29)	47.4% " "
5th " (Nov. 30-Dec. 6)	43.5% " "
6th " (Dec. 7-13)	48.0% " "
7th " (Dec. 14-20)	86.4% " "

The total output (including lignite and coal coked) was estimated at 10,431,000 net tons. The average during the four weeks immediately preceding the strike, which may be regarded as normal, was 12,089,000 tons.

In a single week the bituminous industry climbed from the depression of the strike period to a level of production higher than that of any week from mid-January to mid-August preceding.

Some idea of the amount of coal mined in the United States in comparison with other countries may be gained from the following table which shows in thousands of tons the number of net tons mined in the principal producing countries in two years. The confusion resulting from the war makes these figures only approximate, as statistical reports have been greatly hampered thereby.

Country	Year	
	1917 1,000 tons	1918 * 1,000 tons
United States	651,402	678,212
Great Britain	278,319	255,040
Germany	c 281,429	c 273,930
France	a 81,847	a 80,864
Belgium	16,446	15,229
Japan	a 28,000	a 30,600
Canada	14,047	14,979
New South Wales	9,290	10,160
Union of South Africa	11,629	11,938
Approximate total for the world.	1,473,000	1,468,000
Per cent of world total produced by United States	44.2%	46.2%

a Estimate, subject to revision. c German lignite production estimated at 97,000,000 tons.

The following table shows the estimated production of beehive coke for January 1st to December 27th for 1919 and 1918 by districts:

ESTIMATED PRODUCTION OF BEEHIVE COKE (IN NET TONS) TO DEC. 27

	1919	1918
Pennsylvania and Ohio	14,449,000	21,276,000
West Virginia	1,033,000	2,417,000
Alabama, Tennessee and Georgia	1,649,000	2,426,000
Virginia and Kentucky	1,172,000	1,573,000
Colorado, Oklahoma, and New Mexico	554,000	1,488,000
Washington and Utah	267,000	636,000
United States total	19,124,000	29,816,000
Daily average	63,000	99,000

The maintenance of the maximum prices on coke late in the year was said to have obviated the advisability of converting coal into coke at the mine which existed during the period from October 31st to December 8th, when the war-time prices had been restored for coal but not for coke. This, with the resumption of competition from by-product ovens as the latter received supplies of coal, was said to be partly responsible for the lower level of production.

Late in the year preliminary estimates of coal production for the year 1919 were made public by the Geological Survey. The report indicated a production of 86,200,000 tons of Pennsylvania anthracite and 458,063,000 tons of bituminous, a grand total of 544,263,000 tons. This was less than any year since 1915.

The record year, 1918, showed a production of 98,826,000 tons of anthracite and 578,386,000 tons of bituminous, a total of 678,212,000 tons. The greatest production of bituminous coal in any month of 1919 occurred in October, just prior to the coal strike, when every effort was being made to produce the largest possible quantity. The total in that month was 56,243,000, which was greater than the total of any month during the year 1918.

The coal deposits of Belgium, France and Germany were important elements in the strategy of the great war and the destruction of the mines and the readjustment of territory containing coal were serious matters for the Peace Conference. Aside from this the great question was the decline in production together with the demands for fuel in industry and domestic life. Everywhere there was a shortage varying in degree, it is true, but represented at least by high prices and at the worst by frightful social conditions. On December 1st a parliamentary paper was published by the British government

which contained the following significant table. Output of coal in United Kingdom, United States, France, Belgium, Netherlands and Germany.

Monthly average	Tons	Proportionate Figures
1913	87,270,000	100
1918	86,903,000	99.6
1919 (first half)	70,326,000	80.6
1919 (second quarter)	69,227,000	79.4

CONDITION OF FRENCH MINES. The coal mines of France were comparatively slow in returning to their normal condition, especially those where ruthless destruction had been wrought by German military engineers. This was particularly the case in the Lens region of France. In Lens at the end of the year 17 main shafts and 13 air shafts remained flooded and the dewatering of the mines was considered practically an impossible task until the German engineers who superintended the various demolitions and particularly the blowing of holes in the cement shaft linings could be brought back to give information as to the location of these holes. Even at best and under normal conditions the work of shaft sinking is extremely difficult as the ground is so moist that there is constant seepage, and when shafts were being sunk use was made of the freezing process until the cement lining is put in. Twenty-three companies controlling mines in Lens united during the year to organize a joint staff of engineers and experts to consider the rehabilitation process and also to collect their respective claims against the government. The importance of immediate action towards the resumption of mining was urged on the ground that France, a year after the armistice, was facing an annual shortage of 20,000,000 tons in coal production, which was almost one-half the normal French output. The mines in this region had been totally destroyed and French industry which in 1919 was ready to resume in many cases, was feeling such a shortage of fuel that they could count on little more than a day by day supply.

BRITISH COAL SITUATION. In the restoration of normal conditions of British commerce, the coal situation was receiving considerable attention. The pre-war production of Great Britain was 287,000,000 tons of coal, coke, and briquettes, of which 100,000,000 tons were exported as cargo on bunkers. In 1918 the output was 226,000,000 tons of which 35,000,000 tons were exported as cargo and 25,000,000 tons supplied as bunkers. This export and bunker business was with the Allies on a war rather than a profit basis, and as a result the British coal trade became thoroughly disorganized. Before the war coal represented 75 per cent by weight of all outward exports from the United Kingdom and formed as it always will the only bulk export. Naturally it was closely connected with the entire shipping as it provided a cargo to distance points where materials were available for shipment to Great Britain.

BELGIAN MINES. Unlike those of France, the coal mines of Belgium were not damaged by the Germans, and although they stood in need of new hoisting cables and other important repairs, by the middle of 1919 they were turning out 84 per cent of their pre-war deliveries. Belgium, during the last months of the year was export-

ing coal to France, Italy, Holland and Switzerland, a total of about 400,000 tons a month.

COAL STRIKE. See COAL and STRIKES AND LOCKOUTS.

COASTLAND. (German Küstenland.) A district of the former Kingdom of Austria, comprising the crownlands of Istria, Görz, Gradisca, and Trieste. Area 3078 square miles with a population in 1910 of 893,797, which was estimated in 1913 at 938,008. Trieste, the important seaport, is its largest city, with a population of 246,500 (including its territory) before the war. Pola, a former Austrian naval base, 59,300, and Görz (Goritz) 32,600.

COBALT. The use of cobalt contained in the silver-cobalt mines of Ontario in larger quantity than can be marketed as a material for coinage in the Dominion to replace the 5-cent silver piece has been suggested and advocated on the score that the 5-cent silver piece is very small and inconvenient to handle. A coin of pure cobalt intermediate in size between the 10-cent and 25-cent nickel pieces was recommended, as it would be readily distinguishable from all other coins, and would be both attractive in appearance and so hard as not to be counterfeited readily. The question of a cobalt coin for the British three-penny piece is also under consideration.

COBB, DARIUS. Artist, died at Newton, Mass., April 23. He was born at Malden, Mass., Aug. 6, 1834, and served with the Massachusetts Volunteers during the Civil War. He was a well-known painter of portraits and landscapes, including large exhibition paintings of scriptural and historical scenes. He was a lecturer and art critic and completed a head of Christ in 1814 which he exhibited in the chief cities of the country.

COCHIN-CHINA. The southernmost division of the French Colonial possession of Indo-China (q.v.). It has an area of 20,000 square miles, which is divided into 17 provinces. The total population in 1914 was placed at 3,050,783 of whom 11,251 were Europeans, excluding the military forces. Saigon is the capital and according to the French *General Year Book* for 1919, has a population of 64,496, of whom 4161 were Europeans, while Cholon had 190,085 inhabitants of whom 97,211 were Chinese. About one-fifth of the land is cultivated, the chief crop being rice. Rubber has been introduced, and its growing has greatly increased in the last few years. Other crops are: bananas, oranges, maize, sweet potatoes, beans, betel-nuts, pepper, earth nuts, tobacco, coffee, and sugar cane. There is also extensive fishing and raising of live-stock. In 1916 721 steamers of 1,647,527 tons cleared the port of Saigon. Total exports in 1916 were 211,340,300 francs, and imports 155,748,700 francs. In 1918 the budget balanced at 8,582,900 piastres. The Colonial Council contains 18 members and the colony is represented in France by one deputy. It is a direct French colony and is governed by a resident governor.

COCHRANE, FRANCIS C. Canadian public official, died at Ottawa, Canada, September 22. He was born at Clarenceville, Quebec, Nov. 18, 1852. He was minister of Lands and Mines in 1905, member of Parliament in 1908, and Minister of Railways and Canals at the time of his death.

COINS, VALUES OF FOREIGN. The following estimates of the values of foreign coins for the beginning of 1920 were issued by the United States Director of the Mint:

COKE. See COAL.

COLCHESTER, REGINALD CHARLES EDWARD ABBOT, Third Baron. British peer, died at Brighton, England, March 2. He was born in

Country	Legal standard	Monetary unit	Value in terms of U. S. money	Remarks 1
Argentine Republic.	Gold..	Peso	\$0.9648	Currency: Depreciated paper, convertible at 44 per cent of face value; exchange rate about \$0.4325.
Austria-Hungary...	Gold..	Krone	.2026	Exchange rate about \$0.0061 = 1 krone.
Belgium	Gold..	Franc	.1930	Member Latin Union; gold is actual standard. Exchange value \$0.098.
Bolivia	Gold..	Boliviano	.3893	12 1/2 bolivianos equal 1 pound sterling. Exchange rate about \$0.3257.
Brazil	Gold..	Milreis	.5462	Currency: Government paper; exchange rate about \$0.28 to the milreis.
British colonies in Australasia and Africa	Gold..	Pound sterling....	4.8665	
Canada	Gold..	Dollar	1.0000	
Cent. Amer. States:				
Costa Rica	Gold..	Colon	.4653	Exchange rate \$0.3448 = 1 colon.
British Honduras	Gold..	Dollar	1.0000	
Nicaragua	Gold..	Cordoba	1.0000	Exchange rate \$0.995.
Guatemala	Silver.	Peso	.9271	Guatemala: Currency, inconvertible paper.
Honduras	Silver.	Peso	.5000	Honduras: Currency, bank notes.
Salvador	Gold..	Colon	.5000	Exchange rate about \$0.5128.
Chile	Gold..	Peso	.3650	Currency: Inconvertible paper; exchange rate about \$0.1825.
China	Silver.	Amoy	1.5191	The tael is a unit of weight; not a coin. The customs unit is the Haikwan tael. The values of other taels are based on their relation to the value of the Haikwan tael.
		Canton	1.5146	
		Cheefoo	1.4529	
		Chin Kiang	1.4840	
		Fuchau	1.4052	
		Haikwan (customs)	1.5457	
		Hankow	1.4213	
		Kiaochow	1.4721	
		Nankin	1.5033	
		Niuchwang	1.4246	
		Ningpo	1.4606	
		Peking	1.4810	
		Shanghai	1.3876	
		Swatow	1.4033	
		Takau	1.5287	
		Tientsin	1.4721	
		Yuan	.9955	
		Hongkong	.9991	
		British	.9991	
		Mexican	1.0065	
Colombia	Gold..	Dollar	.9733	The Yuan silver dollar of 100 cents is the monetary unit of the Chinese Republic; it is equivalent to .644 + of the Haikwan tael.
Cuba	Gold..	Peso	1.0000	Currency: Government paper and gold; exchange rate about \$1.0152 to 1 gold peso.
Denmark	Gold..	Krone	.2680	Exchange rate \$0.1925 = 1 krone.
Ecuador	Gold..	Sucre	.4867	Exchange rate \$0.4695.
Egypt	Gold..	Pound (100 piasters)	4.9431	The actual standard is the British pound sterling, which is legal tender for 97 1/2 piasters.
Finland	Gold..	Markka	.1930	Exchange rate \$0.08 = 1 markka.
France	Gold..	Franc	.1930	Member Latin Union; gold is actual standard. Exchange value \$0.0952.
Germany	Gold..	Mark	.2382	Exchange rate about \$0.0215 = 1 mark.
Great Britain	Gold..	Pound sterling....	4.8665	Exchange value \$3.88.
Greece	Gold..	Drachma	.1930	Member Latin Union; gold is actual standard. Exchange value \$0.155.
Haiti	Silver.	Gourde	.2500	Currency: Inconvertible paper; exchange rate approximately \$0.20.
India [British]...	Gold..	Rupee	.3244	(15 rupees equal 1 pound sterling.) Exchange rate \$0.4525.
Indo-China	Silver.	Piaster	1.0008	
Italy	Gold..	Lira	.1930	Member Latin Union; gold is actual standard. Exchange value \$0.0769.
Japan	Silver.	Yen	.4985	Exchange value \$0.5025.
Liberia	Gold..	Dollar	1.0000	Currency: Depreciated silver token coins. Customs duties are collected in gold.
Mexico	Gold..	Peso	.4985	Exchange value silver peso \$1.015; gold peso \$0.50.
Netherlands	Gold..	Guilder (florin)....	.4020	Exchange value \$0.3775.
Newfoundland	Gold..	Dollar	1.0000	
Norway	Gold..	Krone	.2680	Exchange rate \$0.2075 = 1 krone.
Panama	Gold..	Balboa	1.0000	
Paraguay	Gold..	Peso (Argentine)....	.9648	Currency: Depreciated Paraguayan paper currency.
Persia	Silver.	Achrefi	.0959	Currency: Silver circulating above its metallic value; exchange value of silver kran approximately \$0.179.
Peru	Silver.	Kran	.1706	Exchange rate about \$4.30.
Philippine Islands.	Gold..	Libra	4.8665	Exchange rate about \$0.4925.
Portugal	Gold..	Peso	.5000	Currency: Inconvertible paper; exchange rate about \$0.364.
Rumania	Gold..	Escudo	1.0805	Exchange rate about \$0.031 = 1 leu.
Russia	Gold..	Leu	.1930	
Santo Domingo....	Gold..	Ruble	.5146	
	Gold..	Dollar	1.0000	

1 The exchange rates shown under this heading are recent New York quotations and are given merely as an indication of the values of currencies which are fluctuating in their relation to legal standards.

Country	Legal standard	Monetary unit	Value in terms of U. S. money	Remarks 1
Serbia	Gold..	Dinar	.1980	Exchange rate about \$0.046 = 1 dinar.
Siam	Gold..	Tical	.3709	Exchange rate \$0.395 = 1 tical.
Spain	Gold..	Peseta	.1930	Valuation is for gold peseta; currency is notes of the bank of Spain, exchange value approximately \$0.195.
	Silver.			
Straits Settlements.	Gold..	Dollar	.5678	Exchange rate \$0.5025.
Sweden	Gold..	Krona	.2680	Exchange rate \$0.2175 = 1 krona.
Switzerland	Gold..	Franc	.1980	Member Latin Union; gold is actual standard. Exchange value \$0.1812.
Turkey	Gold..	Piaster	.0440	(100 piasters equal to the Turkish £.) Exchange rate about \$1.50 = 1 Turkish £.
Uruguay	Gold..	Peso	1.0342	Exchange rate \$1.0504.
Venezuela	Gold..	Bolivar	.1930	Exchange rate about \$0.1932.

London, Feb. 13, 1842, educated at Eton and Oxford where he was subsequently a Fellow of All Souls, and an examiner in law and history. In politics he was a Conservative, and he served as Charity Commissioner 1880-83 and on the London School Board 1891-94. He edited papers relating to Lord Ellenborough.

COLGATE UNIVERSITY. A non-sectarian institution of learning, located at Hamilton, N. Y. The enrollment for the fall of 1919 was as follows: College, 543; Theological Seminary, 56; total, 599. There were 44 members in the faculty. The income for the year was \$193,353. By the will of Richard M. Colgate the university received \$100,000 to be used for a new dormitory. The library contained more than 85,000 volumes. Colgate was founded in 1819. President, Elmer Burritt Bryan, LL.D., L.H.D.

COLLECTIVE BARGAINING. See LABOR LEGISLATION.

COLLEGES. See UNIVERSITIES AND COLLEGES.

COLLEGES, AGRICULTURAL. See AGRICULTURAL EDUCATION.

COLOMBIA. A republic in the northwestern part of South America. Capital, Bogotá.

AREA AND POPULATION. Boundary disputes with Peru and Venezuela make the estimates on area variant. A boundary agreement was signed with Ecuador in 1917. A provisional estimate gives the area as 435,000 square miles. Another estimate gives 440,846 square miles, the latter being the latest estimate (1919). The coast line is about 3100 miles with about half of it on the Pacific and half on the Caribbean. According to the census of 1912 the population of the 14 departments, 4,832,735; the 2 intendencias, and 7 commissaries, was 231,513, which with a prison population of 6793, makes a grand total of 5,071,101, with an average density per square mile of 11.5. This includes about 30,000 uncivilized Indians. The capital, Bogotá, had a population (1912) of 139,277; the chief commercial towns are Baranquilla, population 48,907; Manizales, 34,720; Cartagena, 36,632; Medellín, a mining centre, 47,354; Cali, 27,747; Bucaramanga, 19,735; Cúcuta, 20,364; the last two named are coffee centres.

EDUCATION AND RELIGION. Though gratis, elementary education is not compulsory. In 1917-18 the state spent 1,163,436 pesos on education. There were 5487 primary schools with 365,494 pupils and 5733 teachers, at that time. In 1917 there were 384 secondary and professional schools, with 33,115 pupils and 98 art and trade schools with 7044 pupils. The university at Bogotá, which was founded in 1572, is the oldest of several universities. The school of mines at

Medellin is well known. Both these are state institutions, the rest being departmental. Cartagena, Pasto, and Popayan are the seats of these universities. In 1918 there were 29 normal schools with an attendance of 1325 students. The state religion is Roman Catholicism, but other forms are tolerated, as long as they are not opposed to the law or Christian morals.

COMMERCE. The principal articles of export in 1917 were, in gold pesos: Coffee, 12,751,569; hides, 4,542,107; bananas, 2,695,365; gold and silver, 4,891,365; platinum, 2,017,554. About 67 or 68 per cent of the coffee exported in 1918 went to the United States. The cotton goes to Liverpool or Havre. The chief imports are petroleum, cotton goods, flour, and lard, which come from the United States, while the majority of the cotton goods come from Great Britain. Platinum exports in 1918 had more than trebled the 1915 figure, being somewhat over \$2,000,000 worth. The export values for 1917 are as follows, the 1916 figures being given in parentheses: \$40,531,330 (\$40,000,800), while the imports ran, \$23,333,826 (\$28,922,529).

COMMUNICATIONS. There were 10 national and 5 British railways in operation in Colombia in 1918 with a length of 740 miles. Of this 466 miles have a three-foot gauge and the rest one meter. In 1917 the gross railway receipts were 5,131,845 gold pesos with a transportation of 955,934 freight tons, and 4,728,155 passengers. Much of the inland traffic is by river, and the Magdalena is being channeled and cleared and is now navigable for 900 miles, steamers going as far up as La Dorada from Baranquilla, a distance of 592 miles. Many of the roads are mule tracks, but these are being improved into automobile roads by the government. Internal postal relations are not quick or efficient, but from Baranquilla, external relations are very good. The number of internal offices in 1918 was about 850. There were 12,000 miles of government telegraph lines in 1915 and 625 offices. A northwestern highway connecting the department of Cundimarca with the public roads of the department of Boyaca was practically completed in 1919. This opens one of the richest sections. At Cartagena in 1917, 234 vessels of 413,174 tons, entered; of these 113 were American and 36 British. In 1916, 208 vessels of 385,055 tons entered. Certain proposals for railway improvement in Colombia were announced during the year. It was stated that \$100,000 was to be raised for the completion and extension of the railway from Tolima to Ibagne. A trial trip had been made over the Gualanday Divide. Plans were being prepared also for the construction of the Uraba Railway, and were to be sub-

mitted to the national Congress of the republic.

A further extension of the Sabana Railway was also to be carried out, to run from Facativa to Pacho.

FINANCE. Gold is the standard of value, and the dollar, valued at 97.33, cents, is the monetary unit. The government has undertaken the redemption of paper money and the substitution of metallic. According to law, after May 1, 1918, silver coins minted prior to 1911 ceased to be legal tender. Revenue for 1917-18 and 1918-19 is as follows: 14,885,000 and 17,650,000, respectively. The expenditures were, for the same periods, respectively, 16,369,965 and 17,106,061. The 1919 financial condition was good on the whole—external debts being met promptly (there was some delay in 1916). Trade journals reported that during 1919 there was not much money in circulation, though more than in 1918, and industries suffered accordingly. In 1919 the country made decided economic progress, and with the development of communications, this should increase materially. The 1919 budget is as follows; year ending February 28th:

Revenue	Gold pesos
Salt tax	1,300,000
Railways	89,000
Telegraphs	560,000
Customs	11,000,000
Consular dues	825,000
Stamps	1,000,000
Succession dues	160,000
Total (including all Revenues).....	17,811,000

Crop	Year	Acreage	Prod. Bu.	Value
Beans	1919	69,000	448,000	1,568,000
	1918	252,000	1,638,000	7,207,000
Potatoes ..	1919	92,000	11,040,000	18,768,000
	1918	99,000	15,840,000	15,682,000

a Tons.

MINERAL PRODUCTION. The mine output of gold, silver, copper, lead, and zinc in Colorado for 11 months of 1919 and the estimated output for December, according to data compiled by Charles W. Henderson, of the United States Geological Survey, Department of the Interior, amounted to \$9,892,000 in gold, 5,630,000 ounces of silver, 35,650,000 pounds of lead, 3,400,000 pounds of copper, and 52,300,000 pounds of zinc, having a total value of \$22,522,000 as compared with \$12,751,718 in gold, 7,063,554 ounces of silver, 65,960,760 pounds of lead, 6,277,332 pounds of copper, and 89,133,901 pounds of zinc, having a total value of \$34,160,172 in 1918. This estimate shows a decrease of \$2,860,000 in gold, 1,430,000 ounces of silver, 32,160,000 pounds of lead, 2,877,000 pounds of copper, and 36,834,

Expenditure	Gold pesos
Ministry of Interior	6,305,049
Ministry of Foreign Affairs	856,850
Ministry of Finance	1,169,564
Ministry of War	2,318,800
Public Instruction	1,224,651
National Debt Service	3,896,463
Public Works	1,529,281
Agriculture and Commerce	310,403
Total (including all Expenditures).....	19,089,574

GOVERNMENT. The legislative power is held by two houses, Senate and Congress. The term of office in the Senate is four years, election by indirect vote; there are 35 members. The House of Representatives numbers 92 and the term is for two years. Sessions of Congress are held at Bogotá July 20th of each year. Executive power is administered by a President elected for a four year term, election by direct vote, and he is assisted by a cabinet of eight members—the ministers of the interior, foreign affairs, treasury, war, public instruction, commerce, agriculture, and public works. President for term ending Aug. 7, 1918, was Don José Vicente Concha. He was succeeded by Señor Marco Fidel Suarez, whose cabinet is as follows: Interior, Dr. Pedro Molina; Foreign Relations, Gen. Jorge Holguin; Finance, Dr. Marcelino Arango; War, Dr. Jorge Roa; Public Instruction, Dr. Emilio Ferrero; Agriculture and Commerce, Dr. Simon Arauja; Public Works, Señor Rafael Del Corral; Treasury, Señor Pedro A. Lapez.

COLLISIONS. See RAILWAY ACCIDENTS.

COLORADO. POPULATION. The population of the State in 1910 was 799,024 and on July 1, 1919 it was estimated to be 1,040,842, a gain of 26,000 during the year.

AGRICULTURE. The following table is compiled from a report of the Federal Department of Agriculture.

Crop	Year	Acreage	Prod. Bu.	Value
Corn	1919	671,000	11,206,000	\$15,913,000
	1918	610,000	10,675,000	14,411,000
Oats	1919	249,000	6,524,000	5,872,000
	1918	251,000	7,530,000	6,024,000
Wheat	1919	1,459,000	17,645,000	35,643,000
	1918	1,250,000	15,400,000	30,030,000
Hay	1919	1,065,000	a 2,396,000	44,326,000
	1918	1,030,000	2,287,000	35,448,000

000 pounds of zinc. Even at the increased value for silver of \$1.11 (average) as compared with \$1.00 in 1918, the value of the silver produced in 1919 was \$6,249,000 as compared with \$7,063,554 in 1918, and with the lower average prices for lead, copper, and zinc, there were respectively decreases of \$2,651,000, \$915,000, and \$4,398,000.

TRANSPORTATION. The total railway mileage of the State is 5542. The only State agency having authority over the common carriers is the Public Utility Commission which exercises functions of a regulatory nature. The road with the longest mileage is the Denver & Colorado, with approximately 1600 miles of track.

OFFICERS. Governor, Oliver H. Shoup, R.; Lieutenant-Governor, George Stephan, R.; Secretary of State, James R. Noland, D.; Auditor, Arthur M. Strong, R.; Treasurer, Harry E. Munnix, R.; Attorney-General, Victor E. Keyes, R.; Superintendent of Public Instruction, Mary C. C. Bradford, D.

JUDICIARY. James C. Garrigues, Tully Scott, James H. Teller, Morton S. Bailey, George W. Allen, H. P. Burke, John H. Denison.

COLORADO, UNIVERSITY OF. A co-educational State institution at Boulder, Col. The enrollment for the summer session of 1919 was 1346, and in the fall it was 1868. The faculty contains 200 members. There are 118,500 volumes in the library. The income for the year was \$600,000. New buildings erected during the year include an engineering laboratory, a greenhouse, a tunnel to carry heat lines, etc. The alumni are raising money for a soldiers' memorial building. The university was founded in 1876. President, George Norlin, Ph.D.

COLORIED METHODISTS. See METHODISTS, COLORED.

COLUMBIA UNIVERSITY. A non-sectar-

ian institution of learning whose principal buildings are located at Morningside Heights in New York City. Allied corporations on this site are Barnard and Teachers' College. The medical school (College of Physicians and Surgeons) is located on West Fifty-ninth Street, and the College of Pharmacy on West Sixty-eighth Street. The University conducts a summer camp at Morris, Conn., the site of which comprises 585 acres. In the fall of 1919 there were registered in all courses 16,664 students, as follows:—Columbia College (academic department for men), 1709; Barnard College (academic department for women), 711; Schools of Mines, Engineering, and Chemistry, 159; Law School, 481; medical School, 404; School of Architecture, 57; School of Journalism, 116; School of Business, 238; School of Pharmacy, 461; Graduate faculties, 1090; School of Education, 1467; School of Practical Arts, 1191; School of Dentistry, 4; unclassified, 116. There were also 8460 students enrolled in the extension teaching department. The 1919 summer session enrolled 9539. The faculty, not counting 27 not in active service, numbered 1097. During 1919 the institution lost by death Calvin Thomas, Professor of Germanic Languages and Literature; James Maclay, Professor of Mathematics; Frank W. Jackson, M.D., Professor of Clinical Medicine; Samuel T. Dutton, Emeritus Professor of School Administration; Abraham Jacobi, Emeritus Professor of Diseases of Children; Rt. Rev. David H. Greer, D.D., Bishop of New York, Trustee; Charles Frederick Hoffman, Trustee. Gifts and bequests received during the year amounted to \$2,381,356 and include \$800,000 for general endowment from the estate of the late Horace W. Carpentier, a former Trustee; \$566,000 to establish a scholarship fund in memory of Perry McDonough Collins, from the executors of the estate of Kate Collins Brown; \$380,000 for the Endowment Fund of the School of Business, from an anonymous donor. \$210,000 from the estate of Robert Van Cortlandt for general endowment; \$100,000 to be added to the fund for the building for the School of Business; and more than \$200,000 from the alumni to be applied toward the deficit in the cost of maintaining the work of the university during the war. Among the important innovations introduced during 1919 were psychological tests for admission to Columbia College which may be substituted for the regular entrance examinations; a course in Contemporary Civilization for Freshmen in the College, which takes the place of instruction formerly given in History, Economics, and Philosophy; and Home Study courses under the department of Extension teaching. The library contained 737,000 volumes. Columbia University was founded as Kings College in 1754. President Nicholas Murray Butler, Ph.D., Jur.D., LL.D., Litt.D.

COLUMBUS, OHIO. See **AQUEDUCTS**.

COLUMBUS, OHIO, FLOOD PROTECTION. See **FLOOD PREVENTION**.

COMETS. See **ASTRONOMY**.

COMMERCE. For foreign trade, see **UNITED STATES** on articles on foreign countries.

COMMISSION FOR INTERNATIONAL LABOR LEGISLATION. See **LABOR, AMERICAN FEDERATION OF**, and **INDUSTRIAL RECONSTRUCTION**.

COMMISSION PLAN. See **MUNICIPAL GOVERNMENT**.

COMMONWEALTH DRYDOCKS. See **DOCKS AND HARBORS**.

COMMUNITY SERVICE. This organization was established in 1919 as an outgrowth of War Camp Community Service to conserve the value of the war work and to make possible a broader and richer social and recreational life for the individual and the community in which he lives, through the development of a community-wide programme of leisure time activities. Organizers are being sent into communities inviting their services, where community committees representative of all the interests of the communities are organized, and programmes of activities including community singing, citizenship activities, the development of programmes and evening recreation centres, and similar events are in operation in a number of communities. National headquarters are maintained at 1 Madison Ave., New York. See **WAR CAMP COMMUNITY SERVICE**. See **CHARITIES**.

COMORO ISLANDS. **MAYOTTE AND THE COMORO ISLANDS**.

COMPENSATION FOR OCCUPATIONAL DISEASES. See **OCCUPATIONAL DISEASES**.

COCINERITE. See **MINERALOGY**.

CONCILIATION, INDUSTRIAL. See **ARBITRATION AND CONCILIATION**.

CONCRETE. FIRE-RESISTIVE CONCRETE. The Committee on Fireproofing of the American Concrete Institute, of which Walter A. Hull was chairman, reported at a convention of the Institute that gravel, particularly highly siliceous gravel, had been proving to be a poor sort of aggregate for concrete which was subject to fire. This was found in tests made by the Bureau of Standards and also in various fires where this material figured. The National Board of Fire Underwriters and the British Fire Preventions Committee, through their respective engineers, had looked into this matter, and they had found that great importance must be attached to the nature of the aggregate used in the concrete. The report discusses the matter in its many bearings and presents the following recommendations pending further developments along this line:

1. That for fire-resistive construction, limestone, trap rock, blast furnace slag and burned clay, be given a preference over highly siliceous gravels.

2. That in cases where gravel aggregate is to be used, with no additional protective material over the concrete, round columns be given a preference over rectangular ones.

3. That, where gravel aggregate is used, all columns, but especially rectangular columns and round columns with spiral reinforcement, be given the additional protection of approximately 1 in. of Portland-cement plaster either on metal lath or reinforced by light expanded metal.

CONDENSED MILK. See **DAIRYING**.

CONFERENCES, INDUSTRIAL. See **ARBITRATION AND CONCILIATION**.

CONGO, BELGIAN. A Belgian colony of central Africa, formerly the Congo Free State, founded in 1885, by Leopold II, King of the Belgians, but annexed to Belgium in 1908.

AREA AND POPULATION. The estimates of area differ, one being 909,654 square miles, the other being 913,127 square miles. Important towns are Boma, the capital, Matadi, Banana, Leopoldville, Stanleyville, Kambove, Niangara, Bandundu, and Elizabethville. The population

of Bantu origin officially estimated at 7,000,000. The European population numbered in 1916, 5364. Of these 3004 were Belgians. The language is a composite of many dialects.

PRODUCTION. The five chief products in the order of their importance are: rubber, palm-nuts, palm-oil, white copal, and cocoa. Ivory is plentiful, and coffee is grown successfully. Cattle raising flourishes where there is no tsetse fly, and mining operations are carried on for gold and silver. Coal, iron, tin, and manganese are also known to exist.

COMMERCE. Total of imports in general trade in 1916 was £2,756,484; in special trades, £2,289,743. According to the Board of Trade returns the imports into Great Britain from Belgian Congo in 1918 amounted in value to £1,563,272. Of the special imports 1,303,979 francs was the value from the United States. At the port of Boma in 1916, 57 merchant vessels of 215,633 tons, entered. The administration possesses 17 steamers on the Lower Congo, and 44 on Upper Congo; there are also about 51 private steamers on Upper Congo.

COMMUNICATIONS. The Congo is navigable for about 100 miles above its mouth to Matadi. From there to Stanley Pool, 200 miles the river is unnavigable, but above this point it is navigable for a distance of 1600 miles. There were 51 postoffices in 1915 and 26 telegraph and telephone offices. There were 1081 miles of railroad on Jan. 1, 1918, and about 5609 miles of road partly suited for automobiles. An important railway development under consideration in the Belgian Congo, was the extension of the Katanga Railway, which ended at Bukama, to a new terminus at a place called Kibouerno, on the upper waters of the Congo. This would overcome the difficulties of navigation on the upper channels between Kabalo and Bukama, which often necessitates early discharge of cargo owing to the lowness of water and would provide more regular and quicker transit.

A further line was proposed from Kongolo southward to Kabalo, which would effect a junction with the existing lines from the Upper Congo at the latter place eastward to Lake Tanganyika.

FINANCE AND GOVERNMENT. The estimates for the 1919 budget are as follows: Revenues, £2,781,296 (2,317,494); expenditures, £2,768,742 (2,599,532), the figures in the parentheses being the 1918 estimates. The largest item of receipts was (1917) 12,370,000 francs for direct taxes, the rest following in amount in order named: Mines, 10,500,000; customs, 6,025,000; transports, casual receipts, various agricultural receipts, taxes on ivory, posts and telegraphs. The expenditures have as their largest single item 29,468,204 francs; the rest follow in amount in order named: Public debt and savings bank, river navy, various, mines, religion and education, posts and telegraphs, and coinage. There is a native force for defense of 12,000 men, and about 6000 territorial police. The king appoints a minister for administration of the colonies. There is a council of 14 members of which he is president. The local representative of the king in the colony is the governor general. M. Henry was appointed governor general in 1916 and held that post at the beginning of 1918.

CONGO, FRENCH. See FRENCH EQUATORIAL AFRICA.

CONGO FREE STATE. See CONGO, BELGIAN.

CONGREGATIONALISM. This denomination in the United States had, in 1919, 6019 churches, 5722 ministers of whom 3449 were pastors and 2273 without charges, 808,122 church members, and 709,859 Sunday school pupils. There were 2631 young people's societies, with 101,888 members and 1366 men's and boys' organizations, with 76,707 members. The home expenses of the churches of the denomination were \$10,251,586. The amount of salaries paid was \$5,358,871, an average of \$1440 for each pastor. The value of church property was \$96,355,821; invested funds amounted to \$12,460,152; debts, \$3,991,881. Among the Congregational national missionary societies are the following: the American Board of Commissioners for Foreign Missions, the Congregational Home Missionary Society, the American Missionary Association, the Congregational Education Society, the Congregational Church Building Society, the Congregational Sunday School Extension Society, and the Congregational Board of Ministerial Relief.

The Woman's Home Missionary Federation and the three (regional) woman's boards of missions, as representing the foreign activities are the work of the women of the denomination. The report of the board of commissioners for foreign missions showed that for the year ending Aug. 31, 1918, the receipts were \$1,309,006.

The 20 missions of the American Board are distributed in 16 lands. In the Near East: 1 in the Balkans; 3 in Turkey; in the Far East: 1 in Japan; 4 in China; 3 in India; in Africa 3; in the Latin world: 1 in Austria; 1 in Spain; 1 in Mexico; among the islands: 1 in Micronesia, 1 in the Philippines. The Japanese native work is self-supporting and carries on its own Mission in Korea where some 30 churches have been organized. A million and a quarter of dollars has been expended in this varied ministry, covering educational, evangelistic, medical, literary, agricultural, industrial, sanitary, reformatory, and relief work of large dimensions. The Red Cross work for Armenia is functioned almost entirely through the American Board. Five of the Board's Missions were in the war lands and have been seriously affected while rendering service to the natives. The American Missionary Association carries on a similar work among the Negroes, Hawaiians, Indians, Porto Ricans, and Asiatics in America. The Home Missionary Society carried on work during the year in 47 States and Territories. The number of missionaries was 1502, while the receipts for the year were \$695,365.

A Five Year Tercentenary Campaign which culminates in 1920, in celebration of the 300th anniversary of the landing of the Pilgrim Fathers at Plymouth, Mass., nears completion. The two financial goals of this movement, viz.: a steady yearly income from the churches of two million dollars for the Mission Boards, and a Five Million Memorial Fund for Ministerial Pensions, are now assured. Programmes of Evangelism, Recruiting and of the study of Pilgrim Principles have also been pursued. This Tercentenary Campaign is now enlarged in a further movement to raise in five years, 50 millions of dollars for missionary and education purposes in connection with the attainment of certain large spiritual objectives. The general ad-

ministration of the church is under the control of the national council. The officers of this council for 1919-1921 are: Moderator, Rev. Henry Churchill King; assistant moderators, Rev. Robert A. Hume and Rev. W. N. de Berry; secretary, Rev. Hubert C. Herring; treasurer, Rev. Frank F. Moore.

In foreign countries reports for 1919 show the following figures: The number of Congregational churches, chapels, and stations was 8716 with a membership of 680,482 and Sunday school membership of 822,036. Of this total England, Wales and Scotland had a total of 4922 churches, chapels and stations, 487,483 members, and 629,443 Sunday school members. Canada had 146 churches, chapels and stations, 13,721 church members, and 10,140 Sunday school members. Australasia had 489 churches, chapels and stations, 21,970 church members, and 35,160 Sunday school members. South Africa had 290 churches, chapels and stations, 20,920 church members, and 8821 Sunday school members.

CONGREGATIONAL METHODISTS. Founded in 1852 in Georgia, by a group of ministers of the Methodist Episcopal Church, South, who had an objection to certain features of the episcopacy and itineracy of that church. They organized what they considered a more democratic form of church government. The first conference adhered strictly to the doctrine of Methodism, but adopted the congregational form of government, although modified by a certain degree of connectionalism. In a few years the movement extended into the neighboring states of Alabama, Florida, and Mississippi, and at present churches are to be found in most of the Southern and some of the Northern States. The denomination suffered a considerable loss in 1887 when nearly one-third of its churches joined the Congregationalists, and within the past decade has suffered heavy losses, apparently through general disorganization. The missionary work has confined its activities to India, although churches in this country have been aided financially. Statistics for the beginning of 1919 show 106 churches, with 220 ministers, and 10,969 church members and probationers. There were 182 Sunday schools with 1146 officers and teachers, and 8785 pupils. Since 1906 the denomination has lost about 25 per cent of its members. The only periodical is the *Messenger* published semi-monthly at Ellisville, Miss.

CONGRESS. See UNITED STATES; also LABOR LEGISLATION.

CONNECTICUT. POPULATION. The population of the State in 1910 was 1,114,756, and on July 1, 1919, it was estimated to be 1,307,163, a gain of 20,000 during the year.

AGRICULTURE. The following table is compiled from a report of the Federal Department of Agriculture.

Crop	Year	Acreage	Prod. Bu.	Value
Corn	1919	55,000	3,300,000	\$5,940,000
	1918	56,000	2,800,000	4,788,000
Hay	1919	340,000	a 544,000	16,429,000
	1918	350,000	a 455,000	10,920,000
Tobacco	1919	25,000	b 39,000	18,057,000
	1918	25,000	b 37,500	16,500,000
Potatoes	1919	24,000	1,680,000	3,276,000
	1918	25,000	2,375,000	3,919,000

a Tons. b Pounds.

FINANCE. The receipts of the State Treasury for the fiscal year ending 1918 were \$15,189,326,

while the expenditures for the same period were \$13,076,034. The funded debt of the State is \$12,062,100. The State ended this year with a net surplus of \$642,572.

OFFICERS. Governor, Marcus H. Holcomb; Secretary of State, Frederick L. Perry; Treasurer, G. Harold Gilpatrick; Adjutant-General, George M. Cole; Comptroller, Morris C. Webster; Attorney-General, Frank E. Healy; Insurance Commissioner, Burton Mansfield; Bank Commissioner, E. J. Sturges; Secretary, State Board of Education, Charles D. Hine; Secretary, State Board of Charities, Charles P. Kellogg.

JUDICIARY. Supreme Court of Errors: Chief Justice, Samuel O. Prentice; Associate Judges, Alberto T. Roraback, George W. Wheeler, John K. Beach, Edwin B. Gager, William S. Case; Reporter, James P. Andrews. See CHILD LABOR; OLD AGE PENSIONS.

CONSTANTINO, FLORENCIO. Distinguished Spanish operatic tenor, died in Mexico City, November 19. He was born at Bilbao, Spain, in 1869. Having won fame in the principal opera houses of Europe and South America, he was brought to the United States in 1907, by Hammerstein (Manhattan Opera House), with whom he remained till 1910. Then he sang with the Boston and Chicago companies until compelled by ill health to leave the stage in 1914. His last months were spent in an insane asylum.

CONSUMPTION. See TUBERCULOSIS.

CONVICT LABOR. See PENOLOGY.

COOK, SIR JOSEPH. Australian representative at the Paris Peace Conference. He held at that time the office of Minister for the Navy of the Australian Commonwealth. He was born in England and was a member of the Australian House of Representatives after 1901, rising to the place of Prime Minister in 1913. He was an enthusiastic supporter of the Dominion's thoroughgoing participation in the war, and he placed the Australian squadron under the orders of the British navy. The Liberal party defeated him at the general election of September, 1914, but he joined forces with the Hughes group and became a member of the coalition ministry.

COOK, SIR EDWARD TYAS. Prominent English journalist, died in London, October 1. He was born in Brighton, England, May 12, 1857, and educated at Winchester and at New College, Oxford, where he was president of the Union and Palmerston clubs, and where he graduated, First Class in the classics, in 1880. From 1882 to 1885 he was secretary of the London society for the extension of university teaching. He was contributor to *Pall Mall Gazette* under Mr. Morley's editorship, and then became assistant editor to Mr. Stead on whose resignation in 1890 he became editor. After the sale of the paper to Mr. Astor in 1892, he resigned and was successively editor of the *Westminster Gazette*, 1893-96 and the *Daily News* 1896-1901. He was knighted in 1912. Meanwhile he had served on the staff of the *Daily Chronicle* and given his time to the writing on a variety of subjects, including art, the Transvaal war, Greek and Roman antiquities in the British museum, and memoirs and lives of Edmund Garrett and Ruskin. He was the editor of the latter's works along with Alexander Wedderburn. In 1913 he wrote *The Homes and Haunts of Ruskin*, and a *Life of Florence Nightingale*, and in 1915 a biography of Delane of the *Times*.

COOPER, CHARLES LAWRENCE. American military officer, died in Worthington, Ohio, September 30. He was born in New York City, Mar. 6, 1845 and educated in the schools of New York. On May 27, 1862, he enlisted in the New York militia and served continuously with the exception of a short period after the Civil War. He took part in the Civil War, in Indian campaigns, and in the Porto Rico campaign during the war with Spain. He entered the regular army in 1866 and had risen to the rank of brigadier-general in the United States army on Aug. 16, 1903, when he retired. After June 30, 1904, he was on duty with the National Guard of Colorado. It was he who mustered the Rough Riders under Colonel Roosevelt into service during the Spanish-American War.

COOPERATION. The coöperative movement appears to have thriven during the war, soaring prices united with a scarcity of the necessities of living to make it urgent that, wherever possible, competitive wastes be eliminated, and more than one government made use of coöperative organizations as distributing agencies. (See *YEAR BOOK*, 1918.) But while the movement grew within the national boundaries, the war effectually checked the tendency toward international consolidation which had been growing since the establishment of the International Coöperative Alliance in 1892. The action of the Alliance was suspended for the period of the war, since by the terms of its constitution, it could not function without representation of all of its members. During 1919 steps were taken to reestablish it upon a pre-war basis.

THE INTER-ALLIED COÖPERATIVE CONFERENCE. The Inter-Allied Coöperative Conference met in Paris from Feb. 7 to 10, 1919. Representatives were present from Belgium, Czecho-Slovakia, France, Greece, Italy, Lithuania, Russia (Archangel government), the United Kingdom, and the United States. It was decided that the importance of the Conference to the coöperative movement as a whole made it essential that the International Coöperative Alliance be represented, and deputies of that body were invited to attend in a consultative capacity. The United States was represented by Herbert Bruce Brougham, special agent on coöperation of the United States Bureau of Labor Statistics; delegates of the Coöperative League of America were detained in this country through passport difficulties. Charles Gide, the economist, dean of the Faculty of Law, University of Paris, was named President of the Conference. Three subjects were chosen for discussion: (1) The economic relations between the nations, and the attitude of the coöperative movement toward the Peace Congress. (2) The best means of unifying coöperative effort to assist in reestablishing coöperation in countries devastated by the war (France, Belgium, Serbia, and to some extent, Rumania, and Italy). (3) The international commercial relations to be established between the central coöperative organizations of the Alliance. A memorandum was drawn up and submitted to the Peace Conference in which it was urged that the functions of the Inter-Allied Committees of Food Control be maintained, and that such committees make use of coöperative organizations as distributing agents; specific measures were recommended for bringing about economic and commercial coöperation among nations. A further resolution was inter-

preted as a move toward the foundation of an International Wholesale Society: "The Inter-Allied Conference, confirming the resolution adopted in 1916, decided that an international bureau of statistics and commercial information will be constituted. The organization of this bureau, as well as the establishment of commercial relations between the different countries, are left to the Inter-Allied Coöperative Office for practical realization."

In accordance with instructions issued by the Conference, an International Committee on Relief of Devastated Areas was formed, and met in London, on Mar. 4, 1919. This committee directed that certain coöperative wholesale societies, notably those of Manchester, Antwerp, Paris, and Basel, be united under a common secretariat, in order to provide more efficiently for the supply of foodstuffs and financial aid to the devastated areas, working through, and rebuilding, the local coöperative societies in those regions.

THE INTER-ALLIED AND NEUTRAL COÖPERATIVE CONFERENCE. A second conference, in which neutral as well as Allied countries were invited to participate, was held in Paris from June 26 to June 28, 1919. Representatives were present from America, Armenia, Belgium, Bohemia, Finland, France, Georgian Republic, Great Britain, Greece, Holland, Lithuania, Rumania, Russia, Sweden, Switzerland, and Ukraina. Resolutions were adopted in favor of: (1) The building up of trade relations between the wholesale societies of different nations, and the establishment of an International Coöperative Trading Organization; (2) the formation of a committee to assist coöperation in the devastated areas; (3) requesting the International Coöperative Alliance to convene a meeting on Aug. 19, 1919, to determine the place, date, and agenda, for the next meeting of the central committee of the Alliance; (4) extending an invitation to the central organizations of unrepresented nations, asking them to join the International Coöperative Alliance.

THE SCANDINAVIAN ALLIANCE. Another important move toward centralization was effected in the early part of the year. The Coöperative wholesale societies of Denmark, Norway, Sweden, and Finland joined forces in the Nordick Andelsforbund, and machinery was created whereby the supplies of all could be purchased through the central agency.

COÖPERATION IN THE UNITED STATES. In 1916 there were 800 coöperative organizations in the United States—each a comparatively small and separate unit—while at the present time there are some 3000, the majority of which are coordinated through the Coöperative League of America (see *YEAR BOOK* for 1918), according to figures given out by Mr. James P. Warbasse, the president of that organization. These associations fall into two classes—consumers' societies and agrarian societies; the latter are by far the more important in point of financial magnitude and membership rolls, but in operation, many of them fall short of orthodox coöperative principles. The past year has been noteworthy chiefly for general growth, but the tendency toward trade-union coöperation is also significant; the activity of the Seattle coöperatives is interesting in this connection. That organization is supported by federated trade unions, and operates a general store, a slaughter-

house and meat-packing establishment, a market with its own ice plant and cold storage facilities, a bank, a laundry, a printing plant, a restaurant, a milk condensary, several shingle mills, a fish cannery, a jewelry factory, and a number of recreation centres. During the general strike in Seattle (see STRIKES AND LOCKOUTS), these facilities were used for the maintenance of the striking workers.

Another movement of note is the activity of the Finnish Coöperatives, an organization which counts in its membership the great majority of the 200,000 Finns in this country. The movement has shown steady growth, and now includes over 150 societies, scattered for the most part, through the Northern States, from Wisconsin to the Atlantic Ocean. They operate a bank, printing plants, daily and weekly papers, and monthly magazines, as well as clubs, theatres, amusement parks, and other recreational centres.

COÖPERATION IN GREAT BRITAIN. Coöperative organizations have been particularly active in Great Britain during the past year. It is estimated that the business done by such organizations totals \$1,000,000,000 per year, with a saving of \$100,000,000, of which \$65,000,000 is annually returned to customers, in the form of cash dividends. Wholesale society sales for 1918 totaled \$317,139,877. The most significant development of the year is the affiliation of the coöperatives with the British Labor Party; no arbitrary consolidation has been effected, but the two organizations have agreed to nominate and vote for the same candidates in all elections. Another event of interest is of legalistic aspect:—The Treasury Department has annulled the clause limiting individual participation in coöperative organizations to \$1000, and as a result development bonds have been issued in all denominations; trade unions are being urged to bank their money in coöperative banks, and to invest their surplus capital in these development bonds.

COÖPERATION IN RUSSIA. The coöperative movement has continued to expand in Russia, despite unsettled conditions. Coöperative enterprise has entered into almost every field—production, distribution, credit, transportation, education, amusement—and it is estimated that two-thirds of the entire population belong to one form or another of coöperative organization. The latest available figures (given out by Mr. A. J. Zelenko, managing director of the American Commission of the Russian Coöperative Unions) are quoted: Consumers' Unions now have a membership of approximately 12,000,000, but since heads of families alone are permitted to be members, this probably represents close to 60,000,000 persons; credit societies, which bank individual savings and extend credit to consumers' societies, have a membership of 4,000,000, and the same number belong to producers' unions. In 1918 the various coöperative enterprises had a total turnover of 8,000,000,000 rubles (\$1,600,000,000) operated 500 industrial plants and gave employment to 50,000 persons.

COÖPERATION IN OTHER COUNTRIES. Figures published in *L'Economiste Français* (Paris, June 21, 1919) show that the membership of coöperative organizations in France totaled 1,500,000 in August, 1918, and that their yearly accounts amounted to \$116,800,000. Recent reports estimate the membership of German coöperative en-

terprises at 2,000,000, while 3,000,000 coöperators are attributed to Austria. In Denmark 40 per cent of the population are members of coöperative societies, in Switzerland and Holland more than 25 per cent, and the movement has obtained a firm foothold in Norway, Spain, Ireland, Finland, Canada, and in some of the South American Republics.

COÖPERATIVE FARMING. See AGRICULTURAL EXTENSION.

COPPER. The production of copper in 1918 was 1,908,533,595 pounds. This represents the smelter output in pounds fine, in comparison with 1,886,120,721 pounds in 1917, 1,927,850,548 pounds in 1916, and 1,388,009,527 in 1915. This was an increase of 1.17 per cent over the previous year. The total value of the output in 1918, as estimated by the Geological Survey at 24.7 cents a pound, was \$471,408,000 as against \$514,911,000 for 1917. The total production of new refined copper in 1918 was 2,432,000,000 pounds, representing an increase of 4,000,000 pounds over that of 1917. The following table shows the primary and secondary copper produced by regular refining plants and imported in 1917 and 1918, in pounds.

Primary Domestic—			
	1917	1918	
Electrolytic	a 1,452,744,593	a 1,560,327,422	
Lake	268,508,091	231,096,158	
Casting	69,916,911	15,284,635	
Pig and best select	82,376,576	76,165,976	
	a 1,873,546,171	1,882,874,191	
Foreign (electrolytic) a b	555,000,000	a b 492,181,364	
Foreign casting and best select		57,829,735	
	2,428,546,171	2,432,885,290	
Secondary:			
Electrolytic	66,337,771	34,674,062	
Casting	12,779,125	9,018,049	
	79,116,896	43,692,111	
Total output.....	2,507,663,067	2,476,077,401	

a The separation of refined copper into metal of domestic and foreign origin is only approximate, as an accurate separation at this stage of manufacture is not possible.

b Includes refined copper imported.

In addition to their output of metallic copper regular refining companies in 1918 produced bluestone having a copper content of 7,917,696 pounds.

According to returns from all producing companies, the stocks of electrolytic, Lake, casting, and pig copper on hand on Jan. 1, 1919 were 180,000,000 pounds; as against 114,000,000 pounds on Jan. 1, 1918, an increase during 1918 of 66,000,000 pounds.

Besides stocks of refined copper on hand Jan. 1, 1919, 562,600,000 pounds of blister copper and material in process of refining were reported as at smelters in the United States, in transit from smelters to refiners, and at refineries, compared with 411,000,000 pounds on Jan. 1, 1918. This does not include copper in stock at foreign smelters or in transit from foreign smelters to refineries in the United States.

The apparent consumption of refined new copper in the United States in 1918 was 1,662,000,000 pounds. In 1917 it was 1,316,000,000 pounds.

The apparent consumption is estimated by the Geological Survey by making certain deductions for exports, stocks held over, etc., from the total available yearly supply of new copper.

In the table below are given imports of copper ore and unrefined copper into the United States by countries for 1917 and 1918.

COPPER IMPORTED INTO THE UNITED STATES IN 1917 AND 1918, IN POUNDS

Country	1917		1918	
	Ore (copper content)	Unrefined black cop- per and copper in bars, pigs, or other forms	Ore (copper content)	Unrefined black cop- per and copper in bars, pigs, or other forms
U. K.	75,591	.....	39,220	112,738
Spain.	371,902	.....		
Canada	31,126,511	40,571,284	30,060,908	37,881,986
Mexico	4,929,250	40,213,831	3,378,084	83,568,187
Chile..	28,447,728	162,227,104	14,707,473	156,285,580
Cuba..	40,100,956	.....	28,861,119	.....
Peru..	4,644,455	100,302,275	1,200,879	81,492,209
Japan.	.....	6,393,524	.....	827,404
Other countr's	6,804,139	5,890,018	8,629,335	18,203,547
	116,500,532	355,598,036	76,872,013	378,371,651

Copper exports from the United States in 1918 totaled 747,689,580 pounds, compared with 1,132,832,663 pounds in 1917. The largest part of the quantity exported consisted of refined copper in ingots, bars, rods, etc., and amounted to 690,027,891 pounds. During the same year 37,648,420 pounds of brass, of a value of \$29,805,398, were sent to foreign markets.

Late in October the Federal Trade Commission made public a special report to Congress on the cost of producing copper in 1918 in the United States and in Canada, Mexico, Cuba and South America. The report dealt with 85 companies, producing approximately 2,250,000,000 pounds of copper—about 95.5 of the total United States production. The data was gathered by the commission during its inquiries for the war period.

The average cost of producing copper for the 85 companies in 1918, the report indicated, was slightly more than 16 cents a pound, and more than 85 per cent of the production cost less than 20 cents a pound. Thus the profit realized for the year averaged 28 per cent on the total investment of more than \$672,000,000.

The Arizona and New Mexico group produced the greatest proportion; 30 companies there producing more than 38 per cent of the total reported to the commission. This group had the largest investment and the lowest cost of production but its profit average came fourth in the seven groups under consideration.

Porphyry companies showed the lowest average cost of production—less than 15 cents a pound. They produced more than 34 per cent of the total.

On the basis of the commission's cost inquiry, the President fixed the price of copper at 23½ cents per pound, effective Sept. 21, 1917, the report pointed out; the price prevailing until July 2, 1918, when it was raised to 26 cents. Those prices were lower than the market prices before government control, and production was kept at almost the same level as under the stimulus of the pre-war prices. For the most part profits of the copper companies, according to the report, were "very high" under the government schedule.

The commission during its cost investigation

of the copper industry, established a uniform standard for determination of costs, some companies keeping books inadequate for a scientific ascertainment of costs.

Production of copper in the United States in 1919 fell considerably below that of 1918, according to preliminary figures of the Geological Survey issued at the close of the year. Figuring on an average price of about 19 cents a pound, the output for 1919 had a value of \$243,000,000, as against \$471,000,000 for 1918. The figures given for the smelter production from domestic ores represent the actual output for the first 11 months of the year and the estimated output for December. The production of blister and Lake copper from domestic ores was 1,278,000,000 pounds in 1919, compared with 1,908,000,000 pounds in 1918 and 1,224,000,000 pounds in 1913. The supply of refined copper (electrolytic, Lake, casting, and pig) from primary sources, domestic and foreign, for 1919 was estimated at 1,800,000,000 pounds, compared with 2,432,000,000 pounds for 1918 and 1,615,000,000 pounds for 1913.

The Bureau of Foreign and Domestic Commerce reported that imports of copper in all forms for the first 10 months of 1919 totaled to 346,855,000 pounds, as against 575,800,000 pounds for the 12 months of 1918. Exports of pigs, ingots, bars, plates, sheets, rods, wire, and like copper products for the first 11 months of 1919, amounted to 496,350,000 pounds; the exports for the 12 months of 1918 were 744,429,000 pounds.

About 180,000,000 pounds of refined copper were in stock in the United States at the beginning of 1919. Adding this quantity to the refinery output for the year shows a total available supply of refined copper of about 1,980,000,000 pounds. On subtracting from this total the exports for the first 11 months and the estimated exports for the last month, and assuming that there was no change in stocks, it appears that the supply available for domestic consumption in 1919 was considerably less than the 1,661,000,000 pounds available in 1918.

The year 1919 could hardly be called satisfactory for the copper producers of the country. Due to the cessation of the war and other causes, the producers entered upon the year with a tremendous accumulation of copper, which even the large business transacted during May, June and July could not dispose of entirely. The government succeeded in liquidating its accumulation by the end of July, gaining the advantage of a sharply rising market.

Although the domestic business of those months was large, it was in part accounted for by the fact that a good part of the copper marketed at that time eventually found its way abroad in the form of rods and wire, which for some reason are more readily disposed of in Europe than raw copper. Though an increased export trade in wire bars, ingot bars and cakes was expected in certain quarters it did not eventuate. Such foreign countries as were financially able to buy to any extent found themselves oversupplied and other countries could not secure the requisite credit. Great Britain and the United States in particular found that they had greatly overestimated their needs in their government purchases. The copper market reached its lowest point for the year in March when the market stood at 14½ cents for

a time. Near the end of July it touched 23 cents due to a considerable demand from Japan, but a decline set in during August until 17% was reached early in December, but the closing figures for the year showed a rally at about 18½ cents. The end of 1919 found the copper industry still burdened with a large accumulation not yet out of the way.

After the vast demands for copper experienced in the World War, the transition to peace conditions required considerable readjustment, especially as the consumption of copper, both for American works and for foreign account was most disappointing. Inevitably the rate of production developed in 1918 was slowed down and strikes at various centres were not altogether unwelcome in view of the limited demands of industry. There were considerable stocks of copper on hand at the beginning of the year and a moderate output was maintained, but at the end of the production was thought to exceed consumption at the rate of from 35,000,000 to 40,000,000 a month. From January values gradually declined until early in March a low point of 14.50 cents at New York was reached for electrolytic and 15.25. From this prices went up until the latter part of July when electrolytic copper reached 23.50 cents and Lake copper 23.75 cents. From this there was a decline until in December a second low point of 18 cents was reached. Reasons for this were to be found in the steel and coal strikes and the conditions of foreign exchange which acted against foreign buying. A committee of the Copper Expert Association returning from Europe late in March reported that while much copper was needed on the continent there was little prospect of extensive purchases. Japan, however, figured to an unusual extent as a buyer of American copper and there were heavy exports to that country, in fact amounting to 63,131,603 lbs. up to Nov. 1, 1919, or more than had been taken in ten years previous to 1919. The government stocks of copper estimated at over 140,000,000 pounds were sold by the producers under an arrangement which secure the liquidation of these holdings by July. The copper interests at the end of 1919 were rather more hopeful as when difficulties were removed it was realized that a large European demand must come.

COPYRIGHT. Registrations for the fiscal year 1918-19 according to the report of the Register of Copyrights were 113,003 as compared with 106,728 for the year before. Of these, 37,710 were for books of which all but 1095 were printed in the United States. The chief classes numerically of the remaining registrations were musical compositions, periodicals, prints and illustrations, dramatic or dramatic-musical compositions, photographs, works of art, models or designs, motion pictures, and maps. The renewals numbered 1906 as compared with 1875 the year before. The fees for these registrations amounted to \$110,281.50. During this fiscal year the number of books printed abroad in foreign language was 1855. The total number of registrations from 1897 to the close of the fiscal year 1919 was 4,212,942. New copyright legislation was proposed during the year to remedy certain defects arising from war conditions which involved the loss of copyright protection for foreign works published abroad during the war. The bill which came up for its

second hearing on June 18, 1919 proposed an amendment to section 8 of the copyright act of 1910 for the retroactive protection of books printed abroad since Aug. 1, 1914, subject to certain specified conditions and the amendment of section 21 to increase from 30 days to 60 days the time, after the first publication abroad of the book in the English language, within which deposit of the copy may be made for the registration of the ad interim copyright, which was to be extended from 30 days to four months. It passed the House on July 23 and was referred to the Senate Committee on Patents. This measure was framed to meet a British proposal to the effect that works first published and copyrighted in the United States which had failed to secure copyright protection in Great Britain should be protected on publication there, provided the United States government undertakes the corresponding protection of English books in the United States. The Register of Copyright in his report recurred in 1919 to his recommendations made in previous years as to adequate protection of authors in English-speaking countries. He sets forth the matter as follows: The loss of adequate international copyright protection has assumed a greatly increased importance by reason of the development of the motion-picture industry, leading to large payments to the authors of copyrighted works for the exclusive right to use such works as the basis for motion-picture photoplays, and correspondingly large losses where copyright has not been secured. Something should be done to eliminate or minimize such losses. What is required is assured protection for literary, dramatic, musical and artistic works in the United States, Great Britain, and the British Dominions—that is, in all the English-speaking countries—for all works first produced in any one of these countries from the date of such first production or publication. This protection should be absolute and should be independent of any technical or merely formal requirements.

In my report two years ago it was suggested that a remedy for this insufficient international protection might be found in a literary-property convention for the formation of a copyright union of all English-speaking countries with the express purpose of guaranteeing full protection in all of these countries for the works of authors, artists, and composers who are citizens or subjects of any one of them. The two years that have passed have accentuated the need of some practical action. The lack of protection in Canada for American plays is cause for much complaint, and the copyright relations between the United States and the other British self-governing dominions are equally unsatisfactory. The remedy proposed should therefore extend to include protection in all these countries. There is a community of interest between all the English speaking and reading nations which urges the establishment of assured protection for all intellectual works throughout all of them. The advantage of such an arrangement would have double weight for our citizens—it would secure to American authors protection for their works in all these countries, and it would protect the American publishers who reproduce in the United States works by authors of the other English-speaking countries.

CORN. Data regarding the world's corn pro-

duction in 1919 continued to be as fragmentary practically as the annual data during the period of the war. Provisional figures published by the International Institute of Agriculture, Rome, placed the total production of eight countries in the northern hemisphere at nearly 3,129,000,000 bushels which represented an increase of over 15 per cent as compared with 1918 for the six countries reporting in both years. A most marked recovery in corn production was recorded for Rumania where the increase over the preceding year was more than 400 per cent, due rather to a better yield than an increased acreage.

The estimates of production given for various countries were as follows: Rumania, 100,467,000 bushels; Italy, 78,800,000 bushels; Spain, 24,574,000 bushels; Canada, 11,234,000 bushels; Guatemala, 4,942,000 bushels; Switzerland, 286,800 bushels, and Algeria, 236,400 bushels. The United States, the greatest corn-producing country of the world, according to estimates by the Department of Agriculture, produced 2,917,415,000 bushels in 1919 as compared with 2,502,665,000 bushels the year before, or an increase of about 16.5 per cent. The year's yield was also approximately 6 per cent above the average production for the five years 1913 to 1917.

The area devoted to the crop, mainly owing to a large wheat acreage as a war measure, was only 102,075,000 as against 104,467,000 acres in 1918 and 107,496,000 acres the average for the five-year period mentioned. The average yield per acre 28.6 bushels, the highest since 1912, more than offset the reduced acreage. This was greater by 4.6 bushels than the average acre yield for 1918 and three bushels above the five-year average. The farm value per bushel on December 1st was 134.9 cents as compared with 136.5 cents on the corresponding date in 1918 and with 82.5 cents for the five-year period. The total value of the 1919 crop at 134.9 cents per bushel was \$3,934,234,000, the highest on record and greater by \$517,994,000 than the value of the 1918 crop and about 40 per cent above the five-year average.

Most corn importing countries continued the fixed maximum prices established by law and in force in 1918. Ocean freight rates under governmental control while still about four times as high as the ordinary merchant rates in 1913 were reduced to a marked degree during the year. From North Atlantic ports to Liverpool the rate on wheat and corn in October and November was \$9.50 on a gold basis per metric ton (2204 lbs.) or about 24 cents per bushel of corn as compared with rates of over \$50 per metric ton the year before. From Buenos Aires and La Plata to the United Kingdom the government rates for the period mentioned were nearly \$15 and the merchant rates approximately \$36 per metric ton, while the merchant rates from these points to the continent were about \$45.50 for the same quantity and during the same period. The merchant rates were governed only by the supply and demand of ocean tonnage.

The results of observations by the United States Department of Agriculture published during the year proved of value in connection with corn shipments overseas. Corn which was dry and in sound condition when shipped arrived in Europe in a like sound condition regardless of the position in which it was stowed, the time of year in which it was shipped, or the length

of the ocean voyage. The higher the percentage of moisture in the corn when shipped the greater was the danger of spoilage during the voyage. It was found that an estimate of the condition of corn on arrival in Europe could be based on the quality, condition and temperature of the corn at the time of shipment.

An insect pest menacing to the corn crop, known as the European corn borer, was first observed in the United States in 1917 near Boston, Mass., and early in 1919 it was reported from the vicinity of Schenectady, N. Y. The area infested at the beginning of the year was 300 to 400 square miles in each locality. Action was taken by Federal and State authorities to prevent the spread of the infestation. This insect is much more destructive than the larger and the lesser cornstalk borers which infest certain parts of the country.

A study of the cost of producing corn made by the Missouri Agricultural Experiment Station from 1910 to 1917, inclusive, showed that on the average for the period corn produced and put into the crib cost \$15.98 per acre or 57 cents per bushel and that the crop paid the farmer \$2.26 net for each 10 hours of labor spent on it. For the four years beginning with 1910 the farmer's labor income per 10 hours was only 87½ cents while in 1917 it reached \$9.53.

CORNELL UNIVERSITY. A non-sectarian institution for higher education, at Ithaca, N. Y. The enrollment for the summer session in 1919 was 2800 and in the fall it was 5432. The entire teaching staff numbers 650. Productive funds of the university amount to \$16,073,000 and the income for the year was \$3,526,439. The library contains 610,000 volumes. During the year there was received an anonymous gift of \$1,500,000 for a chemical laboratory. Late in the year a campaign was started to raise an additional endowment of \$10,000,000, at least half of which is to be used for increasing the salaries of teachers.

CORPORATIONS. See TAXATION and TRUSTS.

CORPUS CHRISTI DISASTER. See HURRICANES

COSTA RICA. A republic of Central America, independent since 1821, lying between Nicaragua and Panama, and having the Caribbean Sea on the east and the Pacific Ocean on the west and south. Capital, San José.

AREA AND POPULATION. The area is estimated at various amounts. The nearest figure is apparently 18,691 square miles. The population, according to the estimate of Dec. 31, 1917, was 454,995, distributed among the various provinces as follows: San José, 136,936; Alajuela, 109,063; Heredia, 47,859; Cartago, 72,217; Guanacaste, 42,120; Punta Arenas, 22,884; Limón, 22,916. Estimated population of San José, 35,654. For the purposes of public health, the country has been divided into 26 districts superintended by medical men paid by the national treasury.

EDUCATION. Primary education is free and nominally compulsory. No later statistics are available than those given in the preceding YEAR BOOKS which are for 1915. At that time there were 419 elementary schools with 1489 teachers, and 34,703 pupils enrolled. There are colleges at several of the principal cities.

PRODUCTION. Agriculture is the chief occupation and coffee and bananas are the chief prod-

ucts. Great quantities of redwood, cedar, mahogany, and other cabinet woods are found in the forests. In 1917 and 1918 there was an increased trade in coffee and bananas with New Orleans, Mobile, New York, and Boston. In 1917 the shipment of coffee to the United States was 4,500,000 lbs. Rice is easily raised but was not produced in 1917 in sufficient quantities for home consumption, and it was necessary in 1917 to import 3,686,177 lbs. In 1919 the home production was greater. The production of sugar cane is universal, and almost every farm has its patch for use as fodder. The capacity of sugar refineries in 1919 was placed at over 7000 tons a year. Next to agriculture, the leading industry is gold and silver mining on the Pacific slope. Among the important mines are the Abangarez and those of Aguacate La Union and La Trinidad. Mining of manganese has recently been developed more widely, and the exports for 1919 show a decided increase. In 1918 it was reported that a large petroleum grant had been made by the government, covering about 11,500 square miles, and being virtually under British control. The lack of adequate transport has prevented the development of the coal resources, which are very rich.

COMMERCE. The value of imports into and exports from Costa Rica, including coin and bullion, in 1917 was 1,203,277 pounds sterling, and 2,447,777 respectively, and for 1916, imports, 1,420,199 pounds, and exports, 2,391,649 pounds. For 1917 the value of the chief imports was as follows, in pounds sterling: Cotton goods, 54,918; cattle, 25,292; coffee, 16,255; flour, 111,859; lard, 25,189; drugs, 29,473; rice, 30,981. The exports, bananas, 868,951; coffee, 812,848; gold, silver, and concentrates from mines, 214,245; hides and skins, 70,877; timber, 62,193.

COMMUNICATIONS. In 1917, there entered the ports of the Republic 577 vessels, of 794,893 tons. Limón is visited regularly by steamers of three steamship companies, one British, one American, and one Italian. The American line is owned by the United Fruit Company. Three lines visit the Pacific port of Punta Arenas. Since the beginning of war, there has been a reduction in the tonnage of ships, for while the same number of ships, or even a greater number had entered, they were smaller vessels, and the total tonnage was thus reduced. Length of railway in operation reported in 1916 was 431 miles, including branches and sidings. Limón and Panama are connected by wireless telegraph, also Bluefields in Nicaragua, and Colon in the Republic of Panama. On Jan. 1, 1919, there were 1514 telephones and 2291 miles of telephone wire in operation; and 122 telegraph offices listed.

FINANCE. Gold is the standard of value, and the unit of currency is the colon, with a par value of 46.536 cents. Revenue, 1917, £685,935, with an expenditure of £1,237,367, and in 1918 the revenue was estimated at £917,300 with an expenditure of £904,042. At the end of the year 1917 the total debt amounted to 50,299,732 colons, of which 30,776,784 was foreign debt, and the rest internal. The estimates for 1918 according to a British authority, were: Revenues, 917,300 pounds sterling, and the expenditures, 914,042. The same British authority indicated that the increase for 1919 would be in this same proportion. During 1916 the average rate of exchange on New York was 3.54 colons

per dollar, and in 1917, 4.77 colons. The chief sources of revenue are customs, liquors, railways, posts, and telegraphs, and the chief items of expenditure are finance, public instruction, and internal development.

GOVERNMENT. Under the new constitution, which was adopted on July 13, 1917, the president and vice-president are chosen for six-year terms by an electoral college comprising both houses of Congress, representatives of municipalities, ex-presidents of the republics, judges, and cabinet officers. The provisional President, Señor F. A. Barquero, assumed office Sept. 2, 1919, and on the following day organized his ministry as follows: Secretary of foreign relations, justice, culture, and beneficence, Señor Andres Venegas Garcia; secretary of government and police, Señor Carlos M. Jimenez Ortiz; secretary of public instruction, Señor Jose Joaquin Garcia Monge; and secretary of war and navy, Gen. Juan Bautista Quiros.

COST OF LIVING. See PRICES.

COTTON. The Crop Estimating Board of the United States Department of Agriculture, on Dec. 11, 1919, estimated the cotton crop of the United States for 1919 at 11,030,000 bales of 500 pounds each. An estimate of the International Institute of Agriculture at Rome, announced November 22, placed the crop at 10,203,925 bales. Each of these estimates indicates a small crop, probably the least since 1903, and the estimate of 11,030,000 bales represents a reduction of nearly 15 per cent from the five-year average of 1913-1917.

The area planted to cotton was 32,390,000 acres, a reduction of 2,940,000 acres below the average of 1910-1914. Throughout much of the cotton region the weather conditions early in the season were very unfavorable and a considerable area was abandoned by reason of boll weevil invasion. This was especially true of the Sea Island regions of Georgia and Florida.

The farm value of the crop and lint was estimated by the Secretary of Agriculture at \$2,332,913,000, based on the prices prevailing on Dec. 1, 1919. This indicates that the crop of 1919 was probably the most valuable cotton crop ever produced in the United States.

The Bureau of the Census reports that there had been ginned, prior to Jan. 1, 1920, 10,017,089 bales, exclusive of linters. In this report are included 110,373 round bales, each of which is counted as half a bale; 33,147 bales of American-Egyptian cotton; and 6710 bales of Sea Island cotton. The American-Egyptian cotton was mostly grown in Arizona. The returns of Sea Island cotton were: Florida, 2886; Georgia, 650; and South Carolina, 3174 bales. In the Sea Island cotton production there was a reduction of 30,139 bales from the crop of 1918, due to a large degree to the abandonment of large areas on account of boll weevil infestation. Georgia, which produced 21,279 bales in 1918, had reported only 650 bales ginned at the end of 1919.

The Egyptian crop of 1919 was reported as about average in Lower Egypt, while the prospects for Upper Egypt and Fayoum were better than in 1918. The crop was estimated at about 1,188,000 bales of 500 pounds each. According to Consular Reports the crop of Brazil was estimated at 1,600,000; Mexico, 120,000; and Spain, 13,200 bales. No data are available regarding the present crop in India, but the area

planted was 17.7 per cent less than the average of the previous five-year period.

The cotton crop of the United States for 1918, the estimated crop for 1919, and the amount reported ginned to Jan. 1, 1920, exclusive of linters, by States were:

States	Crop, 1918 500 pound bales	Estimated crop, 1919 500 pound bales	Reported ginned, Jan. 1, 1920 Running bales
United States.....	12,040,532	11,030,000	10,017,089
Alabama.....	800,622	715,000	680,459
Arizona.....	55,604	75,000	47,262
Arkansas.....	987,340	830,000	715,663
California.....	67,351	102,000	41,161
Florida.....	29,415	17,000	17,515
Georgia.....	2,122,405	1,730,000	1,637,738
Louisiana.....	587,717	300,000	291,222
Mississippi.....	1,226,051	946,000	823,082
Missouri.....	62,162	60,000	48,286
North Carolina.....	897,761	875,000	789,053
Oklahoma.....	576,886	930,000	791,644
South Carolina.....	1,569,918	1,475,000	1,403,592
Tennessee.....	329,697	298,000	239,878
Texas.....	2,696,561	2,700,000	2,465,377
Virginia.....	24,885	22,000	21,150
All other States.....	6,157	7,000	4,002

The final report of the Bureau of the Census showed the crop of the United States for 1918 was 12,040,532 bales, to which there should be added 929,516 bales of linters. The Sea Island cotton crop for 1918 was 52,208 running bales produced as follows: Florida, 20,571; Georgia, 21,279; and South Carolina, 10,358 bales. To June 30, 1919, there had been crushed by oil mills in this country 4,432,357 tons of cotton seed which yielded 1,308,421,423 pounds of crude oil, 2,152,187 tons of cotton seed cake and meal, 1,112,910 tons of hulls, and 127,286 bales of hull fibre. The exports of cotton for the year ending July 31, 1919, amounted to 5,663,290 bales, and the imports for the same period were 201,586 bales. The principal exports were: To the United Kingdom, 2,635,198; Japan, 784,522; France, 734,739; and Italy, 588,373 bales. The leading imports were: From Egypt, 100,006; Mexico, 54,436; Peru, 25,229, and China, 10,872 bales.

The world's production of cotton, exclusive of linters in 1918 was, according to the Bureau of the Census, 17,769,000 bales of 500 pounds net, and the consumption for the year ending July 31, 1919, was approximately 15,970,000 bales. The total number of active and idle spindles in the world is placed at 150,000,000. During the year ended July 31, 1919, cotton mills in the United States consumed 5,767,519 bales. Of these, mills in the cotton States took 3,201,186 bales and those in the other States, 2,566,333 bales. The active spindles in July, 1919, were: Cotton growing States, 14,583,427, and for the balance of the United States, 19,600,980.

Data regarding the cotton situation outside the United States are rather meagre. During the past year the results of a cotton survey of Egypt have been announced. It is claimed, with proper irrigation and drainage, there are sufficient areas for the production of 2,250,000 bales. It is reported that the wide adoption of early maturing varieties has proved a distinct advantage in combating the pink bollworm. The dominant varieties now grown are: Sakel-laridis in the Delta region and Ashmouni in Upper Egypt. The monopoly formerly exercised by the Egyptian government in the purchase

and sale of cotton was terminated Aug. 1, 1919. The British Cotton Growing Association continues to be interested in the production of the staple in British territory.

In South Africa about 12,000 acres and in Zululand 1000 acres were planted to cotton in 1918. In the latter country a staple 1¼ inches long, of good color and strength, was produced. In Nyassaland in 1916 there were produced 6925 bales of what is called Nyassaland upland cotton. There are estimated to be more than 1,300,000 acres suitable for cotton growing in the country. The British West Indies produced in 1918, 1,530,109 pounds of Sea Island; 279,809 of Marie Galante; and 2335 pounds of native cotton.

In India attention is being given to the improvement of cotton, and seed farms have been established for supplying seed of selected strains of cotton. In the Madras Presidency especial attention is being given to the improvement of Northern and Tinnevelly cottons. The acting entomologist has reported the presence of a small stem boring beetle that causes considerable loss in Madras. The Association Cotonniere Coloniale is making an effort to stimulate cotton growing in French colonies and while the production fell off during the war, it is estimated there were about 2,000,000 pounds produced in 1917.

The pink bollworm situation in Texas is considered satisfactory in the main. Late in 1918 the pink bollworm was discovered in the Great Bend of the Rio Grande and in the Pecos Valley of western Texas. Active clean up work was at once begun and no infestations were found in these regions in 1919. All cotton growing in the vicinity of the mills which received Mexican cotton seed in 1916 was thoroughly inspected, and no new infestations were found until in October when a few specimens were taken in an isolated region a few miles south of Beaumont. A thorough search of the region was made but no additional specimens were found. All cotton in the region was destroyed. The legislature of Texas on Mar. 10, 1919, enacted a new pink bollworm law which regulates the growing of cotton in the formerly quarantined areas of the eastern part of the State. During the year airplanes were successfully employed in scouting the non-cotton zones of the State. In addition to the work in Texas, surveys were made in North and South Carolina, where Mexican cotton was received prior to 1918, and in Arizona where there was thought to be possible infestation through the carrying in of infested seed by Mexican laborers, but no pink bollworms were found.

The boll weevil advance in 1919 was favored by the very mild winter of 1918-19, permitting many of the weevils to successfully hibernate. A wide infestation in 1919 was reported. The eastern spread of the boll weevil was stopped when it reached the Atlantic seaboard in 1917 and 1918, and during 1919 its advance was mainly in a northeastern direction. Practically all of Georgia and much of South Carolina were reported as infested in 1919 and late reports show that the boll weevil reached some of the counties in North Carolina in the vicinity of Wilmington. One of the important events of the year in boll weevil control was the demonstration of the efficiency of calcium arsenate applied as a dust to the plants. The dew takes up

some of the arsenic and the boll weevils sipping it are quickly destroyed. The calcium arsenate is applied as a fine dust with power blowers. The treatment is said to be economically satisfactory when applied to cotton grown on an intensive scale.

A World's Cotton Conference was held at New Orleans October 12th to 16th with a large attendance. Among the questions discussed were the desirability of uniform cotton bales, seed selection, better cotton farming, new sources of cotton, uniform classification, etc. A plan was proposed for bringing the cotton grower and spinner closer together. According to data submitted, there are more than 6,000,000 persons engaged in the cotton industry and \$20,000,000,000 is invested in the growing, sale, and manufacture of cotton.

COURLAND. Situated on the Baltic Sea and the Gulf of Riga, it is bounded on the south by Kovno. Area, 10,435 square miles; population, estimated Jan. 1, 1915, 812,300. Libau is the largest city with a population estimated before the war at 90,700. The capital is Mitau (Mitava) with a population of 46,800. It passed into the hands of Russia at the third partition of Poland in 1795, and up to the revolution, was one of the Baltic Provinces of Imperial Russia.

COURT TENNIS. See RACQUETS and COURT TENNIS.

COUNTRY LIFE. See AGRICULTURE.

COUNTY DEMONSTRATION WORK. See AGRICULTURAL EXTENSION WORK.

COVENT GARDEN. See MUSIC, *England*.

COWLES, EDWARD. Specialist in mental diseases, died at Plymouth, Mass., July 25. He was born at Ryegate, July 20, 1837; educated at Dartmouth and at the College of Physicians and Surgeons, New York City; was assistant physician at the Hartford Retreat in 1863; became a surgeon in the United States army during the war and in 1879 was appointed medical superintendent of the McLean Hospital, Somerville. He held this office until 1903. He was also professor of mental diseases at the Dartmouth Medical School from 1885 to 1914, and after that Professor Emeritus. He was a lecturer in the meanwhile at other universities.

COWLES, JULIA DARROW. Author, died at Toronto, Canada, September 6. She was born at Norwalk, Ohio, Jan. 6, 1862, and studied in the University of Minnesota. She was editor on the staff of *The Housekeeper*, 1903-06, and devoted herself especially to the writing of stories for children. A list of her writings includes the following: *Jim Crow's Language Lessons* (1903); *Stories to Tell* (1906); *Robinson Crusoe Reader* (1906); *Our Little Athenian Cousin of Long Ago* (1913); *Our Little Roman Cousin of Long Ago* (1913); *Our Little Spartan Cousin of Long Ago* (1914); *The Art of Story Telling* (1914); *Our Little Macedonian Cousin of Long Ago* (1915); *Favorite Folk Tales Retold* (1916); *Going to School in Animal Land* (1917); *The Queer Little Tailor* (1917); *Indian Nature Myths* (1918); *Plays and Poems* (1917-18).

COWS. See DAIRYING.

COX, KENYON. American painter, died in New York City, March 17. He was one of the leading mural and figure painters of the time and was also well-known as a writer of art subjects. He was born at Warren, Ohio, Oct. 27, 1856, and after studying in this country passed

five years in Paris under Carolus Duran and Gérôme, chiefly the latter. In 1887 he received a medal at the Paris exposition. On returning to the United States he led the movement which resulted in the founding of the Society of American Artists and he was for many years a teacher in the Art Student's League. His paintings include a variety of figure subjects but his reputation mainly rests upon his mural works among which may be mentioned: Decorations in the Library of Congress; Bowdoin College; Minnesota State capitol; Citizen Building, Cleveland, Ohio; Iowa State capitol; Newark, N. J.; Wilkes-barre, Pa. In 1910 the medal of honor for mural painting was awarded to him by the Architectural League. He designed the mosaics in the dome and the paintings in the Senate Chamber of the Wisconsin State capitol. Among the best known of his pictures may be mentioned "Hope and Memory," "The Hunting Nymph," "Book of Pictures," "A Vision of Moon Rise," and "October Afternoons." The portrait of Saint-Gaudens and his painting of the Harp Player are in the Metropolitan Museum, New York. His writings on art subjects are regarded by art critics as sound and scholarly and among them may be mentioned the following: *Old Masters and New* (1905); *Painters and Sculptors* (1897); and *The Classic Point of View* (1911). He was also the writer of a humorous book entitled *Mixed Beasts* (1904).

CRANE. The development of naval and merchant ships during the war led to the construction of important machinery at the navy yards on a larger scale than ever previously attempted. At the Philadelphia Yard there was under construction in 1919 at the fitting-out slip a crane with a lifting power of 392 tons, capable of handling larger assemblies of battleship machinery than had previously been installed as units. This crane was of the revolving hammer-head type, standing 230 feet high, or the height of a modern 16-story office building. The bottom chord of the revolving truss clears the ground by 170 feet, and the operating house 200 feet in the air has a height equivalent to two stories, and is itself equipped with a 35-ton crane for handling the operating machinery. The contract was let on Dec. 27, 1917.

A somewhat smaller floating revolving crane of large capacity was put into service at the Mare Island Navy Yard during 1919, to be used for shipbuilding, repair and fitting out purposes. This machine was furnished at a contract cost of \$480,000, and the pontoon on which it was mounted was manufactured and the machinery installed at the yard. It is a counterpart of the one at the Norfolk yard, and is capable of handling a 150-ton load at an overhang of 62½ feet from the side of the pontoon. The elevation of the hook under such conditions is nearly 100 feet, so that the crane could be used for extremely heavy loads, revolving them to position and stowing them aboard ships of the highest freeboard. The maximum upward reach of the jib was approximately 200 feet.

CRAWFORD, SIR RICHARD. Commercial commissioner at the British embassy in the United States during the war, died at Bourne-mouth, England, August 27. He was born in 1862. He had been engaged in the difficult task of preventing friction between England and the United States before the United States entered the war, and during the period when the applica-

tion of the British blockade naturally tended to cause irritation in certain quarters. His tact and courtesy and his perfect fairness did much to maintain good feeling between the two countries, and caused him to be honored and esteemed by Americans. The war work told heavily on him, and although he accepted a post in Egypt in the hope of recuperation he did not recover.

CRETE. An island in the Mediterranean Sea, under the suzerainty of Turkey until May 31, 1913, when it was ceded to the Balkan powers, which by treaty of Aug. 10, 1913, the treaty of Bucharest, was formally recognized in its union with Greece. Area, 3327 square miles; population, 1911, 344,001; capital, Canea, with a population of 25,185. Language, Greek, and majority of people are Greek. The export trade is mainly wheat, fruit, olive oil, wool, soap, carobs, cheese, and valonia. See **ARCHAEOLOGY**.

CRICKET. The end of the war caused a big boom in cricket with the return from the battle front of the leading players. The New York Club for the second year in succession won the Halifax Cup series held under the auspices of the Associated Cricket Clubs of Philadelphia. The Germantown Cricket Club put up a valiant fight, only succumbing after a play-off. Bert Kortlang of the Manor Field Cricket Club was the leading batter in the series and A. B. Mann of the Germantown Club was first among the bowlers. In New York City the Manhattan Cricket Club of Brooklyn gained the title in the Metropolitan District League competition and the Manor Field Club of Staten Island carried off the laurels in the New Jersey Cricket Association series.

CRIMINOLOGY. See **PENOLOGY**.

CRISTOBAL. See **DOCKS AND HARBORS**.

CRITICISMS. See **LITERATURE, ENGLISH AND AMERICAN**.

CROATIA AND SLAVONIA. Formerly, though not a part of Hungary proper, formed a part of the Hungarian Kingdom as a crownland; now a part of Jugo Slavonia or the Southern Slav State. It extends from the Danube and Drave rivers westward to the Adriatic. Area, 16,421 square miles; population estimated in 1913 at 2,668,569. Agram is the capital with a population (1910) of 79,038. Prior to the revolution the provincial diet met annually at Agram, and was composed of 19 members who served five year terms. The Ban was the executive head, responsible to the Hungarian Prime Minister and the provincial Diet. Anton Mihalovitch was the Ban at the beginning of 1918.

CROOKES, SIR WILLIAM. British physicist and chemist, died in London, England, April 4. He was one of the most distinguished pioneers in science during the nineteenth century. He was born in London, June 17, 1832; studied at the Royal College of Chemistry; and became superintendent of the meteorological department of the Radcliffe Observatory, Oxford (1854), and lecturer in chemistry at the Chester Training College (1854), but soon engaged in scientific research in London where he made his home for the rest of his life. The external features of his career may be briefly summarized. He founded the *Chemical News* of which he became the editor and proprietor after 1859, and he edited the *Quarterly Journal of Science* after 1864. In 1862 he received a medal at the International Exhibition. He received medals or prizes at successive exhibitions and from various

scientific bodies in 1880, 1881, 1885, and frequently thereafter including the medals of the Universal Exposition at Paris in 1881, the Albert Gold Medal in 1899, and the gold medal of the Society of Chemical Industry in 1912. From 1908 to 1912 he was at various times president of the Chemical Society, the British Association, and the Institute of Electrical Engineers, and member or corresponding member of a large number of the great scientific bodies throughout the world. He was knighted in 1897. In 1907 he received along with Edouard Buchner the Nobel prize for chemistry and in 1910 the Order of Merit. His scientific career was so long and diversified that only the barest summary is here possible. He began publishing in 1851, his first paper being on the subject of the selenocyanides. This marked the beginning of his chemical researches and led the way to his discovery of a new chemical element which he announced in 1861, giving it the name of thallium. He devoted several years to the investigation of its properties, and his researches in its atomic weight led to results which are still regarded as standard. In the course of them he was brought to abandon the idea that air currents were responsible for the loss of weight of bodies on becoming hot and he substituted the theory that there was a repulsion resulting from radiation. His work along this line led to the construction of the instrument known as the radiometer. Meanwhile he discovered the sodium amalgamation process for separating gold and silver from their ores (1865), and developed a new method for the spectroscopic investigation of substances. His studies of "radiant matter" suggested to him the existence of indivisible particles supposed to constitute the physical basis of the universe and marking the stage at which matter and force seemed to merge. His experiments in radiant matter also led to speculations 1886-87 in regard to the genesis of the element. He came to the conclusion that various so-called simple bodies were in reality compound molecules formed by the process of gradual condensation from a single primordial material. He put forth these views in an address to the British Association in 1886, and in subsequent addresses. In 1898 at Bristol he described a new rare earth, monium or victorium. After the discovery of radio activity in 1896 he devoted his studies for a time to the properties of radium and a large number of published works contained the results of these and many other researches during his long and active career. His views as to the genesis of elements were held by physicists as likely to form an important contribution to chemical philosophy as new knowledge of the facts developed. A list of his writings includes the following: *Select Methods in Chemical Analysis* (4th edition, 1905); *Manufacture of Beetroot-Sugar in England* (1870); *Handbook of Dyeing and Calico-Printing* (1874); *Dyeing and Tissue Printing* (1882); *Kerl's Treatise on Metallurgy* (1868, with Ernst Rohrig); *Wagner's Chemical Technology, Auerbach's Anthracen and its Derivatives* (2d edition, 1890); *Ville's Artificial Manures* (3d edition, 1909); *A Solution of the Seicage Question*; *The Profitable Disposal of Sewage*; *The Wheat Problem* (1899); *Diamonds* (1900).

CROP PRODUCTION. See **AGRICULTURE**.

CROSS COUNTRY RUNNING and **MARATHONS.** Fred Faller of the Dorchester Club,

Mass., won the senior cross country championship of the Amateur Athletic Union. The race was run over the Van Cortlandt Park course, New York City, on November 29th, Fallers' time being 32 minutes 26½ seconds. Charles Pores of the Millrose A. A., New York City, finished second in 32 minutes 40½ seconds. The point trophy went to the Millrose A. A. with 36 points, the Paulist A. C. taking second honors with 45 points. John Simmons of Syracuse University scored a double victory in the sport, capturing both the junior championship and the intercollegiate fixture. His time in the junior event was 33 minutes ¾ seconds. Simmons's university took the junior point trophy through the efforts of himself and L. Watson who finished in second place. In the intercollegiate run Simmons covered the Van Cortlandt Park course in 32 minutes 55½ seconds. W. K. McMahon of Massachusetts Institute of Technology was second in 33 minutes 12 seconds, and Robert Crawford of Lafayette College third in 33 minutes 25 seconds. The college point trophy was captured by Syracuse which compiled a total of 49 points. Princeton University took second honors with 69 points, and Cornell University was third with 80 points.

The American Marathon held under the auspices of the Boston A. A. on April 19th was won by Carl W. A. Linder of the Hurja A. C., Quincy, Mass. His time was 2 hours 29 minutes 13¾ seconds. William Wick, also of Quincy, finished second in 2 hours 30 minutes 15 seconds. Max Bohland, the cross country champion of 1918, captured the modified marathon conducted by the New York *Evening Mail*, his time for the 10½ miles being 55 minutes 56 seconds. Charles Pores of the Millrose A. A. was second, only 11 seconds behind Bohland. The 10-mile run of the Amateur Athletic Union was won by Fred Fallers of the Dorchester Club in 52 minutes 32¾ seconds.

CRUISERS. See NAVAL PROGRESS.

CUBA. A Latin-American republic in the West Indies, comprising the island of Cuba, the Isle of Pines, and small adjacent islands. Capital, Havana.

AREA AND POPULATION. The area is 44,164 square miles, and the population at the close of 1916 was placed at 2,627,536, an increase of 116,438 over the last year. There are six provinces: Havana, Matanzas, Pinar del Rio, Santa Clara, Camagney, and Oriente, of which Havana has the smallest area and the largest population, namely, 3,174 square miles, and 688,057 population, making a density per square mile of 216.77. The average density for all the provinces is 59.65 per square mile. Oriente is the largest of the provinces, with an area of 14,227 square miles, and a population of 604,530. The city of Havana had a population of 359,259. The whites form 71.9 per cent and the colored 28.1 per cent of the total population. Immigrants in 1918-19 were 42,574. The emigrants in 1917-18 numbered 71,599. A law providing for a new census was passed in 1919.

PRODUCTION. The land finds its principal prosperity in the staple crops of sugar and tobacco. The 1918 sugar crop was 4,048,480 tons. The total area of sugar plantations was 1,384,812 acres, with 211 sugar mills. The value of the tobacco manufactured in 1918 was placed at \$33,829,627. Cuba's production of rum in 1915 was 696,067 gallons; of alcohol, 2,021,116

gallons. At the beginning of 1916 the live stock in the island consisted of 3,703,928 head of cattle; 720,040 horses; 54,264 mules, and 2882 asses. Among other leading products are citrus fruits, cereals, potatoes, and other vegetables, coffee, cacao. Cuba has forest lands many of which are privately owned. The state owns an area of about 1,250,000 acres. These forests contain mahogany, cedar, dye-woods, fibres, gums, resins, and oil. Cigarette boxes are made locally from the cedar, while the mahogany is exported. The chief tobacco-growing region is the province of Pinar del Rio, which supplies the large trade in cigars and cigarettes. Rice-growing has recently been developed. There are rich mineral resources, especially in the province of Oriente. Iron, manganese, copper, zinc, lead, gold, potash, asphalt, salt, and petroleum are found in abundance. In the district of Santiago de Cuba copper, manganese, and iron mines are being developed. There were about 4000 workmen employed in the iron mines in 1919 and the exports to the United States had averaged 50,000 tons a month. In 1919 trade journals indicated an increase in the development of manganese and the export of iron ore.

COMMERCE. In the fiscal year 1918-20, the imports were \$315,587,167; exports, \$477,221,963; reexports, \$93,113. For the year 1919, the principal exports arranged in the order of their importance were: Sugar, unmanufactured tobacco, iron, gold, and copper ores, manufactured tobacco, molasses, hides and skins, distilled products, vegetable fibres, woods, bee-products, fruits, grain, and sponges. Imports by countries, arranged in the order of their importance, for the year 1919, were: United States, United Kingdom, Spain, France, British India, Uruguay, and Porto Rico. Exports by countries were: United States, United Kingdom, Spain, France, Italy, Netherlands, and Argentina respectively.

COMMUNICATIONS. For description of railway system, see preceding YEAR BOOK. In 1919 a branch line was projected to connect the Fomento-Casilda line with Manicaragua. There were 1235 miles of cart road open to traffic on April 1, 1918. At this time there were about 660 post offices, 230 telegraph offices, and 9 wireless stations operated by the government. In 1916, 5540 vessels of 8,164,145 tons entered and 5477 of 8,144,317 tons cleared; in the coasting trade 14,684, of 2,582,829 tons entered; and 14,712, of 2,584,211 tons cleared.

GOVERNMENT. A law promulgated by the President on January 18th repealed the law of August 3, 1918, establishing obligatory military service. Amnesty was granted to violators of the repealed law and to persons convicted of crime and misdemeanors committed for the purpose of evading military service before Dec. 31, 1918. The cabinet consists of secretaries of State, Justice, War and Marine, of the Interior, of Finance, of Agriculture, Commerce and Labor, of Public Instruction, of Public Works, and of Sanitation and Charity. In 1919 the President, Gen. Mario G. Menocal (succeeded Gen. José Miguel Gomez, May 20, 1913—re-elected in November, 1916, for the term expiring May 20, 1921).

Early in the year one of the subjects drawing attention was the need of reforming the Cuban electoral whose defects the present administration had recognized and promised to remove. A bill was introduced for this purpose providing

for an obligatory vote, the finger-print method of identification, and the public counting of the ballots. The United States War Department agreed in February to send Provost Marshal General Crowder to Cuba to advise with the government in regard to the revision of the electoral law. It was he who while serving with the American army of occupation in Cuba had provided the existing laws and had supervised the first presidential election. Labor troubles approaching even the dimensions of a general strike were reported early in the year.

CUDAHY, PATRICK. Meat packer, died at Milwaukee, July 25. He was born at Callan, Ireland, March 17, 1849. He came to the United States in 1849 and was educated in the Milwaukee public schools. He began his business life as delivery boy for a grocer and at 14 entered a packing company and rose to the position of superintendent in 1874 and partner in 1876. In 1888 he established the firm of Cudahy Brothers and five years later moved the plant to Cudahy near Milwaukee. The firm became one of the largest and most important companies in the United States. He was president of it until 1915 when he retired.

CUDDEBACK, WILLIAM HERMAN. American jurist, died at Goshen, N. Y., August 16. He was born in Orange County, N. Y., March 25, 1852, and was admitted to the bar in 1877, and practiced at Goshen 1877-85 and at Buffalo 1885-1913. He was prominent in Democratic politics and was corporation counsel of Buffalo, 1898-1902. He was appointed in 1913 Associate Justice of the New York Court of Appeals for the term 1913-26.

CUMBERLAND PRESBYTERIAN CHURCH. Founded in 1810 as a separate presbytery of the Presbyterian Church because of the refusal of the officers of the Kentucky Synod to allow this group of churches to appoint the ministers it chose, this denomination has had an eventful career. The Rev. James McGready, the leader of the "revival" movement, and generally looked upon as the father of the Cumberland Presbyterian Church, never favored it and never identified himself with the independent body. The new church grew rapidly, until in 1829 there were four synods and a general assembly. The fact that the strength of the church was in the border States made it inevitable that the slavery question should become prominent, and during the Civil War the denomination was barely saved from disunion. Then came the question of the negro churches, resulting in a mutual agreement for the establishment of the Colored Cumberland Presbyterian Church, as affording to the negroes the opportunities they needed most for church development. In 1904 the General Assembly effected a union with the Presbyterian Church in the United States of America, but strong opposition in the Cumberland Presbyterian Church resulted in the formation of a new General Assembly and a legal fight to obtain possession of the church property with varying results.

Missionary work is carried on in China where four churches are maintained with about 600 members, while considerable work is done in America among the Indians.

The latest available statistics (1916) show 1317 organizations, with 72,052 members, a decrease of 123,718 from 1906, value of church property, \$1,935,072. There were 909 Sunday

schools, with 6618 officers and teachers, and 53,431 pupils. All figures show a loss of about 65 per cent over the same figures for 1906. The educational interests of the denomination are represented by Cumberland College, at Leonard, Tex., and Cumberland Presbyterian Theological Seminary, at McKenzie, Tenn. *The Cumberland Presbyterian*, is published in Nashville, Tenn., and the *Cumberland Banner* is published in Tullahoma, Tenn.

The Cumberland Presbyterian Church (Colored) had, according to the latest available statistics (1916) 136 organizations, 13,077 members, and 132 church edifices. Church property was valued at \$230,426. There were 139 Sunday schools, with 928 officers and teachers, and 7471 pupils. Figures show a loss from corresponding figures in 1906 of about 30 per cent. *The Colored Cumberland*, a semi-monthly periodical, is published in Milan, Tenn.

CURAÇAO. A colony of the Dutch West Indies, with an area of 436 square miles and had a population (Dec. 31, 1917) of 57,619. The islands of Curaçao, Bonaire, Aruba, St. Martin (the northern part of which belongs to France), St. Eustache, and Saba compose the group. The government consists of a Governor and three members of a council appointed by the Sovereign and presided over by a Vice President. There is also a Colonial Council of 13 members, nominated by the Sovereign. In the 1919 budget the revenue is estimated at 1,018,834 guilders, and the expenditure at 1,812,566 guilders, the difference being supplied by the mother country. The chief products are maize, beans, pulse, cattle, salt, and phosphate of lime. Oil refining is the chief industry. The ports of the various islands show an entrance of 3773 vessels in 1917, of 1,325,242 tons net.

CURRENCY. See **BANKS AND BANKING; COINS, VALUE OF FOREIGN, AND FINANCIAL REVIEW.**

CYCLING. Frank L. Kramer, the "grand old man of the wheel," was dethroned as sprint champion in 1919 by Raymond Eaton. Kramer compiled a total of 33 points in the various races as against 39 secured by his rival. The amateur sprint laurels were won by Charles A. Osteritter with 24 points. Anthony Young was second with 12 points.

The annual six-day race held at Madison Square Garden, New York, attracted the largest crowds in the history of this event. At the end of the long grind all the teams remaining on the track were tied with 2501½ miles to their credit, but according to the rules the winner was to be determined by the number of points scored in the various sprints held during the week. These showed that Goulet and Madden were the winners with a total of 818 points. Egg and Dupuy finished second with 684 points, and McNamara and Magin third with 633 points.

CZECHO-SLOVAKIA. A republic whose independence was proclaimed on Oct. 21, 1918, and which came into existence with the definite organization of a government at Prague on Oct. 28, 1918. It was formally proclaimed a republic on the following day. The movement toward its formation had been rapid since the latter part of 1917, and it had been recognized as an independent state by Italy on April 23, 1918; by Great Britain, Aug. 3, 1918; by the United States, Sept. 2, 1918; and by Japan, Sept. 9, 1918. Before that Premier Clemenceau of France, on

Dec. 10, 1917, had authorized the organization of a Czecho-Slav army. The constitution was drafted at Geneva, Switzerland, Nov. 2, 1918, and on Nov. 14, 1918, the National Assembly met at Prague and formally proclaimed a republic with Prof. Thomas Garrigue Masaryk as its first president. It consisted of the four former Austrian states of Bohemia, Moravia, and part of Silesia, and the portion of Hungary known as Slovakia.

AREA, POPULATION, ETC. Its area has been estimated at 52,000 square miles. The area of Bohemia is 20,065; of Moravia, 8584; of Silesia, 1988. Figures for Slovakia are not available, but its area has been placed in the neighborhood of 30,000 square miles. The population according to the census of Dec. 31, 1910, was: Bohemia, 6,769,548; Moravia, 2,622,271; and of Silesia, 756,949. Of Slovakia, the estimated population in 1919 was between 3,000,000 and 4,000,000. It should be noted that the above estimates are inexact for the present time and that the total area has been placed as high as 60,000 square miles with a total population of about 13,000,000. The frontiers were to be determined at the Peace Conference. At the beginning of 1919 they were as follows: On the north the frontier of Hungary remained the same; on the west the line followed the Hungarian frontier as far as the Danube, then followed the Danube to the outlet of the Eipel, and then along the Eipel as far as Rimas to Zombat, whence it passed to the mouth of the Ung River, then followed the Ung as far as the Uzsok heights. The recognition by the Hungarian ministry of the autonomy of Slovakia on March 10, 1919, raised the question of determination which was not settled in 1919. The estimated population of the chief towns on June 30, 1914, was as follows:

Prague and environs	550,000	Ustí	40,000
Brno	135,000	Budějovice	40,000
Pízen	85,000	Vitkovice	30,000
Přepurk	85,000	Kladno	25,000
Košice	48,000	Pardubice	22,000
Moravská Ostrava	42,000	Olomouc	20,000
Liberec	40,000	Stármice	20,000
		Nitra	20,000

The dominant religious element is Catholic, but no later figures are available than those of the census of 1910 which are given in the preceding issues of the YEAR BOOK under the title AUSTRIA-HUNGARY. Later statistics than those already given in the previous YEAR BOOKS under that title are not available for education. Elementary instruction is compulsory between the ages of 6 and 14, and secondary education is provided in gymnasias and other secondary schools. There are three universities of which two are in Prague (one being Czech, the other German), and one in Pressburg. Only 2 per cent of the population were reported as illiterate. The figures for production, industry, etc., are included in the previous issues of the YEAR BOOK under AUSTRIA-HUNGARY, no later ones being available. It was estimated that in Bohemia direct taxes before the war amounted to 88,000,000 crowns a year, and indirect taxes to 250,000,000 crowns. Expenditure for 1919 was estimated at 3,000,000,000 crowns.

FINANCE. The first budget was presented by the minister of finance to the National Assembly in May. The expenses amounted to 3,800,000,000 crowns, from which certain extraordi-

nary items were to be deducted, leaving a net amount of 3,118,000,000 crowns. Some points of interest in the financial situation may be briefly mentioned. It was estimated that the current income would amount to about 2,310,000,000 crowns, the current expenses to about 2,120,000,000 crowns, and the excess income to about 182,000,000 crowns, but this was on the assumption of peace conditions, whereas the country was practically on a war footing, as it was necessary to maintain an army of some 370,000 men on account of the situation in Hungary and Siberia. The military enterprises had cost as much as 460,000,000 crowns and to this 1,150,000,000 crowns had to be added on account of aid to the families of soldiers and to the demobilized troops that had formerly served with the Hungarian and Austrian armies, and who were either out of work or invalided. Moreover, there was a serious industrial crisis entailing heavy expenses in relief to the civilian population. This was estimated as involving 216,000,000 crowns more. On account of the low exchange rate the government was obliged to supply food stuffs to the population below the cost price abroad, and this item added some 220,000,000 crowns to the expenses. Finally the increased wages of state employees added 865,000,000 crowns and the railway system being in a deplorable condition threatened to show a deficit of 400,000,000 crowns. The financial policy was not based on loans, but on a series of new taxes, namely, on interest paid on current accounts of banks and other institutions at 6 per cent; a progressive supplement to the land taxes; a tax on commercial turnovers; a special tax on the registration of foreign companies; a stamp duty on foreign premium bonds; stamp duties for tenants' contracts; tax on the coal output amounting to 20 per cent of the price; tax on wine and the increased duty on alcohol; and a duty on traffic. These taxes and duties were expected to yield the sum of 750,000,000 crowns. Plans of railway readjustment were expected to increase railway returns by 500,000,000 crowns. It was further proposed at the end of the financial year to levy a tax confiscating a part of the excess profits due to the scarcity of food and raw materials. A plan for a heavy imposition on capital was being carried out during the year. Private and collective fortunes of all descriptions were being registered, and it was designed to confiscate the vast percentage of the excess profits and thus remedy the unhealthy inflation of values.

ECONOMIC CONDITIONS. Problems of reconstruction were extremely difficult, for the country had not only suffered during the war, but inherited bad financial and industrial conditions from the Austro-Hungarian régime. It was estimated that the Czech countries before they had been separated from the empire produced 85 per cent of the cotton output, and 95 per cent of the wool output in Austro-Hungary. To the Czech countries also some 70 per cent of the metal output of Austro-Hungary was attributed; 50 per cent of the motor car output; and 60 per cent of the aluminum goods industry. Under the empire the system of taxes was based partly on excise raised on alcohol and beer production. This yielded in 1919 only about 8 per cent of its figure before the war, for the production was reduced in order to keep up the food supplies and the raw materials.

GOVERNMENT. The working out of the constitution was left to the National Assembly. Its principles were indicated in the declaration of independence of Oct. 18, 1918, as involving freedom of conscience, religion, the press, assembly, petition, speech, science, literature and art; separation of church and state; universal suffrage; equal rights of women in all respects; proportional representation; equal rights for national minorities; the parliamentary form of government; and the initiative and referendum. The National Assembly numbered 260 members and was composed of all political parties which were represented as follows: Agrarians, 54; Social Democrats, 50; Slovaks, 50; State Right Democracy, 44; Socialists, 28; Clericals, 28; Progressive party, 6. The first president as noted above was Thomas G. Masaryk. The first government, known as the government of national concentration, was appointed Nov. 14, 1918, and was composed as follows:

Prime Minister, Dr. K. Kramár (State Right Democrat).
 Minister of Foreign Affairs, Dr. E. Benes (Realist).
 Minister of the Interior, M. Švehla (Agrarian).
 Minister of War (vacant, May 5, 1919).
 Minister of Public Instruction, M. Haberman (Social Democrat).
 Minister of Finance, M. Rasín (State Right Democrat).
 Minister of Agriculture, M. Prásek (Agrarian).
 Minister of Commerce, M. Stránský (State Right Democrat).
 Minister of Posts, M. Strábrný (Socialist).
 Minister of Public Works, M. Staněk (Agrarian).
 Minister of Public Health, M. Šrobár (Slovak).
 Minister for Home Defense, M. Kľofác (Socialist).
 Minister of Supplies, M. Vrbenský (Socialist).
 Minister of Public Welfare, M. Winter (Social Democrat).
 Minister of Railways, M. Zahradník (Agrarian).
 Minister without Portfolio, M. Hruban (Catholic).
 Minister of Justice, M. Šaukup (Social Democrat).

The area of Slovakia is not definitely known, but is estimated at about 30,000 square miles, and the population at from 3,000,000 to 4,000,000. The Hungarian government at that time in power recognized on March 10, 1919, Slovakia as an autonomous territory, but its boundaries were not fixed.

THE CZECHO-SLOVAK POLITICAL PROGRAMME. The general principal of the programme of the new state was set forth by the President, Masaryk, at the session of the National Assembly at Prague, held on October 28th to commemorate the anniversary of the founding of a republic. These principles had to do with ultimate aims and not with temporary policies. President Masaryk was celebrated long before the war as a writer of scholarly works on history, literature, and economics, and he ranked among the leading authorities as a student of social changes in the nineteenth century and later, and especially as an investigator of the origin, theory, and development of various shades of socialism and anarchism. He was the leading patriot in the movement for the Czecho-Slovak state, and was received with enthusiasm in his visits to America and to other countries of the Allies, when he was seeking to arouse sympathy for his cause. After the organization of the republic, he was everywhere regarded as the right man for the presidency. During the first year of the country's history he won a reputation as one of the ablest statesmen in Europe. In his address on this occasion as well as in his other writings he showed that he regarded Bolshevism as an impossibility, and he condemned Lenine's

programme as a form of revolutionary trade unionism inconsistent with the principle of Karl Marx himself. Karl Marx, he said, looked for a high social and economic development, while Lenine and his policies would relegate development to the primitive stage represented by the illiterate Russian peasant. But President Masaryk disapproved of intervention in Russia or Hungary, holding that Russia like every other nation passing through such a crisis must help herself, and that Bolshevism could not be checked by military measures, but only by social reform and political education. He believed that Bolshevism would fail, but warned people against deriving from that fact arguments for reaction. To him Bolshevism was a form of preliminary and abortive socialism, though its ultimate aims were not very different from those of the moderate party in central Europe and in Russia. The watchword that he advocated for his country was thorough social reforms without bloodshed. He looked for the socialization of the means of production, but realized the difficulty in his way on account of the abnormal conditions following the war, and said that the working classes might for a while be worse off than they had been, and that for the building up of a new order sacrifices were demanded of them as well as from the capitalist class. He opposed a dictatorship and any other form of violence as always injurious. But in the long run the socialization that he had in mind would involve the public control of the whole economic life, with the result that the public would demand a balance sheet of every industry in the future just as it now demanded a budget from the state. President Masaryk concluded his address by saying that he looked upon socialization, not only as economically, but as morally sound, and that he did not believe it was a matter of mere materialism, but that at any rate he could put up with the materialism of the hungry more easily than with that of the over fed. These principles were manifestly in direct contradiction to those of the governing classes of the leading countries of the Allies, including the United States among the Allies, and radicalism carried to any such point would have been instantly condemned by leading journals and public men in England, France, and America. There was not, however, evidence of any disposition to criticize it on the part of those countries.

As noted in the preceding YEAR BOOK Prof. T. G. Masaryk was elected in November as President of the new government. He had been chairman of the Czecho-Slovak National Committee. This election, which was held by representatives of the eight political parties assembled at Geneva, Switzerland, was ratified on November 10th by the National Assembly and Dr. Karl Kramarz was chosen Premier and Voita Benes Minister of Foreign Affairs. On December 20th President Masaryk assumed his office. Serious boundary disputes confronted the new state, on the one hand with Poland (See POLAND) and on the other with Hungary. There were also serious troubles of a political nature owing largely to the policy of Premier Kramarz who favored the maintenance of large landed estates, which policy was exposed to the growing opposition on the part of the Agrarians and Socialists and finally led to the downfall of the Kramarz cabinet. A new ministry consisting only of Social Democrats and Agrarian Socialists

headed by the Socialist Vlastimil Tusar, as Prime Minister, succeeded to power. Mixed commissions were called upon to decide the dispute between Czecho-Slovakia and Poland in respect to the region of Teschen.

On March 1st it was announced that the commission on the frontiers had decided to include all of historic Bohemia.

GENERAL CONDITIONS. A summary of the first year under the new republican government indicated that in the main the country had made fair progress, considering the difficulties that it had to encounter. After the armistice in 1918 the economic condition was menacing. There was a scarcity of food and clothing. Frontiers had not been fixed and there was no army capable of defending the state, or administration capable of orderly government. This was the situation that the new government under M. Kramarez had to face. In the autumn of 1919 conditions were still difficult. The cost of living was high, the rate of exchange unfavorable, and the problems of provisioning, and of coal shortage were serious. The first budget showed a marked deficit and conditions of life were far from normal. But in the meanwhile, the frontiers had been fixed, and the only question to be settled was that of Teschen which was reserved for a plebiscite. The German claims in Bohemia had been abandoned after the peace. The Hungarian invasion of Slovakia had caused much damage. Much was said in the press about a movement for self-government in Slovakia where there was much discontent with the present arrangement. This, however, was denied in other quarters, especially by the French, who were staunch supporters of the new republic. It was said that Slovakia as a whole was firmly attached to the new state and that the movement for self-government had encountered public demonstrations of hostility in all the principal cities. The army had been organized under the direction of French officers. Provisioning was improving and crops were said to be abundant in Bohemia, Silesia, Moravia, and Slovakia, although on account of the lack of reserve supplies importation was necessary. The government was making efforts to provide for the lack of necessities and raw materials, and to relieve the shortage of transport and coal. It was also endeavoring to promote exportation. As to the financial situation, the rate of exchange had become very low, but had recovered somewhat. The government was planning to issue an internal loan and endeavoring also to obtain credit abroad. Good order was reported throughout the country even in the region of Teschen, and a monarchical plot reported in the press in December was said to have had no importance. Plans were being made for the holding of a new National Assembly to replace the present one which had been established as the result of agreement among the different parties.

RAILWAY QUESTION. The head of the transport service in the new republic made the following report as to conditions on the railways: It pointed out that the territory on the new map of Europe formed an irregular rectangle narrowing from west to east, and having about 150,000 square kilometers. The situation in the centre of Europe rendered its railway system particularly important. Practically all the transit from north to south would have to pass over Czecho-Slovak lines. The exports of Ger-

man manufactures, for example, into south Europe would have to pass through Czecho-Slovak territory, and it would be the same for the agricultural products coming from southeastern Europe, especially the Balkans and Rumania. Moreover, in regard to passenger traffic it was plain that the great through express trains would have to cross this territory. Therefore the Allies in their own interest would hardly fail to use the Czecho-Slovak route. On three sides the new republic was surrounded by its former enemies, and free access to the sea was a question of life and death. He had no doubt that the Peace Congress would recognize this just claim. The best means of joining the railway lines with a seaport would be the creation of a "corridor" between Czecho-Slovakia and Jugoslavia, which would have the good result of promoting friendly relations between the two neighboring states and would throw a great burden upon the Czecho-Slovak lines which at that time had a total length of 13,500 kilometers, about 60 per cent belonging to the state. During the Austro-Hungarian régime they had suffered much from the hostile railway policy of their rulers, for Vienna had always been favored to the disadvantage of Prague, the lines between Vienna and Budapest were better kept up than the others, and the important centres were always established on German territory. Lines were carried at a distance from Prague in order to conceal from foreign tourists the attractiveness of that city. The system, inherited from the Austro-Hungarian Empire, was therefore in a wretched state, especially in the matter of rolling stock. After the armistice the Magyars had robbed the country of hundreds of locomotives and cars, and the material was utterly inadequate. At this moment the administration of the railways had to contend with the difficult problem of supplying the means of transit for the provisioning of the country and these difficulties were aggravated by lack of coal as well as by the loss of man power. The financial situation was bad. The budget presented to the National Assembly in 1919 showed a deficiency of more than 400,000,000 crowns, and the situation was worse on account of the distribution of the lines which all converged toward Vienna and Budapest, and did not answer to the needs of the new republic. The system in Slovakia especially was practically unworkable. It would be necessary to complete new lines joining Slovakia with Moravia and Bohemia. A complete renewal and organization was necessary.

THE QUESTION OF STATUS. For 300 years Bohemia had been in revolt against Austria. Her liberties had been suppressed after the battle of Black Mountain in the seventeenth century, and thus began a long period of religious intolerance and Germanization. At the time of the Congress of Vienna, while the fate of Italy and Poland was considered, the claims of the Czecho-Slovaks was not even mentioned. Its demand at the close of the war was that a new state should be set up with some 12,000,000 or 13,000,000 inhabitants. There were serious difficulties in the way, owing to the great damage done by the war, and also to the fact that the Germans had everywhere penetrated the country forming three principal groups which numbered from 1,500,000 to 2,500,000. For many years these Germans had carried on a Pan-German propaganda against the Czecho-Slavs. As-

similation of the two races was out of the question; nor could these three German regions be separated from Bohemia, for they contained great mineral wealth and factories essential to economic life. On the other hand, the German population could not survive if it did not find in Bohemia the market for its industrial products. Moreover, there were several Czech enclaves entirely surrounded by Germans. In short, Bohemia though geographically a unit, was not ethnographically a unit. The confused condition from the ethnical point of view was the result of German expansion and Magyar invasion. The problem before the great Powers therefore was extremely difficult. If the principle of nationalities was strictly applied, the result would be the partitioning of Bohemia, and life would become impossible for the two nationalities that lived side by side in the country. On the basis of geographical necessity there could be no adjustment of boundary between the Czecho-Slovak state and Poland on the one hand, or between it and Hungary on the other. A suggested solution was that Bohemia, Moravia, Silesia, and the Slav countries which had been taken from the Hungarian kingdom should not be considered alone. Regard must be had besides to the interdependence of the races of central Europe, and to such a grouping of them as would give to each the best frontiers possible consistent with their existence in common. It was necessary to devise a grouping that would preserve effectually central Europe against Prussian domination, and of such a system the Czecho-Slovak state would be the keystone.

THE REVOLUTION. Though the following events did not occur in the calendar year 1919, information in respect to them was not available in time to include them in the previous **YEAR BOOK**, so a summary is here supplied. The antecedents of the Bohemian movement for independence date many years back. For three centuries in fact Bohemia had endeavored to regain the liberty that she lost in the battle of the Black Mountain in 1620. Patriotic propaganda had been carried on through journalism, local committees, and other bodies for many years, and persisted in spite of the persecution by the Austrian military and police. Many secret societies were formed including one that used the name *Maffia*, borrowed from the famous Sicilian society. It was so organized that each conspirator knew only two members of the society and worked with them; and the chief of the organization, Dr. Szamal, was the only one who knew all the members. This body succeeded in maintaining communications between the Czecho-Slav committee in Paris and the politicians at Prague and Vienna. It organized a system of spies and stole documents from the enemy. It was said to have taken in this manner documents from the offices of Count Stürgkh, Austrian Prime Minister. Women and children participated in this espionage. Among those who were concerned in the conspiracy were Dr. Benes, Dr. Stanek, afterwards Minister of Labor, Dr. Stepanek, afterwards Minister to Paris, Dr. Borsky, Minister to Rome, and other prominent men. As the result of these activities the Czechs were kept informed of the most secret designs at military headquarters or at court. It was said that they had learned even what the Emperors William and Charles had decided upon at their last interview. They employed invisible ink and

resorted to other methods which prevented detection. At one time they published an apparently innocent review in which by chemical process the intermediate lines could be read. Toward the end of September the head of the secret society, Dr. Benes, told the conspirators to be ready for the revolution. On October 29th the Czecho-Slav committee was master of Prague. The Austrian government had fled, the generals had laid down their arms, and the capital celebrated its liberation. At the same time the news was brought that the Czecho-Slav state had been recognized by the entente, with Thomas Masaryk as President.

DAHOMY. A French West African colony, extending from Togoland on the west to Lagos and Nigeria on the east and to the French military territories in the north. Dahomey forms part of the government-general of French West Africa (q.v.). It has about 70 miles of coast line, with, however, an extensive hinterland. According to a recent estimate of the population, there were 900,000 (1917), which includes 457 Europeans. The majority of the natives are fetish-worshippers (about 800,000), while there are also 70,000 Mohammedans, 20,000 Roman Catholics, and 5000 Protestants. The capital is Porto Novo, which is also the chief business centre, with about 20,000 inhabitants. Other towns of importance are: Abomey (12,372); Ouida or Whydah (13,000); Grand Popo (2115); Cotonou (2456). The principal imports are: Cottons, machinery, liquors, and tobacco; the exports: Maize, palm kernels (5,980,988 francs in 1917), palm oil (9,432,320 francs in 1917), copra. The exportation of kola nuts and of rubber is decreasing. An iron pier has been erected at Cotonou, and from that port a railway is being constructed to run into the interior as far as Chaoru (400 miles). At present about 176 miles have been constructed, with a gauge of a meter. There is also a meter-gauge railway running between Porto Novo and Pobé (50 miles) along the Lagos frontier. The budget for the colony for 1918 reached the sum of 5,475,860 francs. The local budget for 1918 reached 4,942,985 francs. The imports for 1915 and 1916 were, respectively, £425,250 and £695,230, and the exports £526,571 and £751,242. There are 1389 miles of telegraph line and 70 miles of telephone line.

DAIRY EXPORTS. See **DAIRYING**.

DAIRYING. During 1919, the dairy situation in the United States became much more stable than during the previous two years. Much of the uncertainty and unrest was eliminated and production considerably increased. The dairy cow population remained almost stationary. The number of milk cows in this country on Jan. 1, 1919, was 23,467,000, an increase of 157,000. Most of the Northern States had about the same number as the year before, while a few showed a decrease. Each of the South-eastern States, however, increased the number of dairy cows.

The feed situation was considerably relieved with better shipping facilities and with no restrictions. The prices of feeds, however, were somewhat higher than during the previous year. With the return of the soldiers and the men from the industries to the farms, the labor situation was improved, with the result that although the number of milk cows had not increased, production showed considerable gains during the

year. Creamery butter increased 50,000,000 pounds, while condensed milk made the enormous gain of over 300,000,000 pounds. The production of cheese, on the other hand, was 20,000,000 pounds less than the year before.

The following table gives the trend of factory production for the years of the war.

THE FACTORY PRODUCTION OF DAIRY PRODUCTS IN THE UNITED STATES

	Creamery butter	Factory cheese	Condensed milk
1914	786,003,489	377,573,409	875,507,438
1916	760,030,573	314,716,739	997,835,115
1917	748,895,068	872,540,208	1,358,605,594
1918	793,289,801	852,621,615	1,675,477,860
1919 (6 mo.)	417,006,215	141,972,534	1,031,476,106

FOREIGN TRADE IN DAIRY PRODUCTS. During the years of the war, the exports of dairy products from the United States increased, while imports decreased, although before the end of the year the tendency was toward pre-war conditions, when the imports of dairy products to the United States exceeded its exports. During the first half of the year, however, the exports of butter were heavy, amounting to 33,739,960 pounds. This is the largest amount exported from the United States for more than 20 years. Cheese decreased to less than 19,000,000 pounds, which is the least exported since 1914. The condensed milk which was exported in increasing quantities during each year since 1914, going largely to the armies, continued to be exported in even larger quantities after demobilization, this product for the past year going largely to the civilian population instead of to the armies. The exports of condensed milk during 1919 amounted to 728,740,509 pounds.

The following table shows the trend of foreign trade in dairy products of the United States since the beginning of the war. It will be noted during that period that this country changed from a net importer to an exporter of dairy products of considerable quantities.

EXPORTS AND IMPORTS OF DAIRY PRODUCTS, UNITED STATES

Fiscal Year	Exports (domestic)	Imports for consump- tion	Excess of exports over imports	Excess of imports over exports
Condensed milk:				
1914	16,209,082	14,951,086	1,257,996	.....
1915	37,285,627	38,613,389	8,622,238	.....
1916	159,577,620	18,173,426	141,404,194	.....
1917	259,141,231	18,356,416	240,734,815	.....
1918	528,759,232	29,926,931	498,832,301	.....
1919	728,740,509	20,183,723	708,556,786	.....
Cheese:				
1914	2,427,577	64,497,470	.....	62,069,893
1915	55,862,917	48,097,118	7,265,799	.....
1916	44,894,301	31,420,537	12,973,764	.....
1917	66,050,013	14,685,866	51,364,147	.....
1918	44,303,076	8,582,717	85,720,359	.....
1919	18,794,853	2,442,306	16,352,547	.....
- Butter:				
1914	3,693,597	7,788,390	.....	4,094,793
1915	9,850,704	3,695,882	6,154,822	.....
1916	13,487,481	720,961	12,766,520	.....
1917	26,835,092	523,808	26,311,284	.....
1918	17,785,966	1,596,633	16,139,333	.....
1919	33,739,960	4,131,469	29,608,491	.....

(The 1919 figures are from the Monthly Summary.)

On account of the loss of cattle in Europe during the war, there has come to this country a demand for dairy cows, but because of the

high cost of transportation and the scarcity of feeds for cattle in Europe, only a comparatively few animals have been shipped. An order was placed by the French Government for a great many dairy cows largely of the Holstein breed, but after 12,000 had been shipped, it was found that feeds would not be available for more, and shipments were discontinued.

The milk situation has become somewhat more settled, and the consumption in the cities has increased. The prices have remained about the same as last year, with slight increases in some sections. The system of paying for milk on the basis of the cost of production has been somewhat changed, notably in large consuming centres of the East where an effort has been made to base the price in a manner to give consideration to the supply and demand. The New York commission has, during the year, paid for milk on the basis of market prices for butter and cheese.

PRODUCTION OF CHEESE OF FOREIGN VARIETIES. The United States normally imported more than 50,000,000 pounds of cheese annually, largely of special varieties made in Europe. The supply of these was almost entirely cut off during the years of the war, and this stimulated investigations in the methods of production of these varieties in this country. Investigators in the Department of Agriculture during the year were successful in isolating the organism which causes the flavor and eyes of Swiss cheese. As a result of this discovery, along with the use of a culture known as *Bacillus bulgaricus* which controls the organisms that may be present in the milk, a high class American Swiss cheese is now being made on a commercial scale.

Camembert cheese, which was also formerly imported, is now being made in increasing quantities in this country.

Perhaps the most notable success in cheese manufacture has been the production on a commercial scale of American Roquefort cheese. Heretofore, this product had been made in no other place than a limited section in Southern France where natural caves were responsible for the particular curing which seems necessary for the manufacture of this type of cheese. The natural condition of these caves was imitated by refrigerators constructed with temperature and humidity control. An excellent product is now being made in this country on a commercial scale.

ICE CREAM. There has been an enormous increase in the consumption of ice cream in this country during the past year. It is believed that this has been influenced by prohibition. The increase in some of the States has amounted to as much as 50 per cent, and for the entire country the quantity is so large as to have a material effect upon the whole dairy industry.

CATTLE BREEDING. The year has shown much progress in the development of dairy cattle in this country. It is realized by the dairymen that high production is an important factor in economical production, and the surest way of decreasing the cost of production and meeting foreign competition will be through animals with high production. Indications are that the production per cow is increasing, although it is far short of the average production of cows of some other countries.

BETTER SIRE CAMPAIGN. The importance of breeding is shown by the campaign that has been

inaugurated by the Department of Agriculture to eliminate scrub sires from the herds of this country. The department, in coöperating with the States, is offering a certificate to each farmer who uses pure bred sires on his farm. In addition to this, bull associations are being established throughout the country. The purpose of these associations is to decrease the cost of sires and to use good sires on several farms for as long a period as they are useful. There are in this country more than 5,000,000 farms with dairy cows with an average herd of about five animals, while there are less than 500,000 good sires. The bull associations own the bulls jointly, whereby one sire may serve from 8 to 10 small herds. These associations have made much headway during the year.

MILK BY-PRODUCTS. In the manufacture of butter and cheese, enormous quantities of buttermilk and whey are left as by-products. These have not been fully utilized as food in this country, and with the increasing price of foods, there has come a tendency to utilize these products in various forms. Buttermilk is being converted into cottage cheese and casein, while the whey is being made into a type of cheese, and investigators in the Department of Agriculture have devised a method of extracting the albumen into a powder which is soluble in water. It is believed that this product will become useful in cooking and baking, to take the place of eggs to some extent.

CANADA. Much the same conditions prevail in Canada as in the United States. The dairy cow population has increased slightly, with 3,547,437 as compared with 3,543,600 milk cows last year. Even with this slight increase, the production has gone up considerably in the case of butter and condensed milk, while the cheese production has slightly decreased. The surplus of products has largely gone to England.

ARGENTINA. There has been some increase in the production of dairy products, stimulated by the demand from Europe. Previous to the war, Argentina showed a net import of dairy products, while now there is a rather large export. Practically all of the surplus is being contracted for by Great Britain.

AUSTRALIA AND NEW ZEALAND. In these countries dairying has prospered during the past year. Production has increased, as well as prices for the products. The surplus was contracted for by the British government. The north island of New Zealand, however, has suffered on account of the exceedingly dry weather, which has continued over a long period. This reduced the production more than 25 per cent and necessitated economy in milk consumption in the cities of New Zealand. Much attention is being given to the dried milk industry. Because of the distance to markets, the producers of New Zealand are expanding the manufacture of this product. During the year, equipment has been secured from the United States for the manufacture of milk powder.

EUROPE. Efforts are being made in all parts of Europe to return to pre-war conditions in the dairy business. England, which normally imports large quantities of dairy products, has been obliged to secure her butter, cheese, and condensed milk from other countries than she did before the war. Formerly it secured butter largely from Denmark, Siberia, France, Canada, and New Zealand. During this year, however,

it purchased the entire surplus from Argentina, Canada, New Zealand, and Australia, and also secured considerable quantities from the United States. On account of disorganization, Siberia has not sent butter into the world's trade. Denmark, Holland, and France have been unable to get back to pre-war production, largely on account of lack of feed. The latter country, however, lost many cattle through invasion. The dairy herds of Europe have not suffered as heavy losses as was first believed. England apparently has about the same number of dairy cows as before the war, and Denmark and Holland when the young cattle are included, also have about their normal numbers of dairy cattle. France, however, has probably lost in the neighborhood of a million. Belgium, of course, suffered a great loss of dairy cattle, as did also northern Italy. An effort is being made to build up the herds and get back to normal production, but the shortage of feed, more than the number of cattle, has prevented this. This is also true of Switzerland, which, like Denmark and Holland, depended largely upon Russia, Egypt, and the United States for certain concentrated feedstuffs. Central Europe suffered some loss in dairy cattle during the war, but here also the production has been limited on account of lack of concentrated feeds for the animals. The five important dairy countries of Europe, namely, Denmark, Netherlands, France, Italy, and Switzerland, are all producing considerably below normal, chiefly on account of lack of feeds for cattle.

DALLAS, TEXAS. See CITY PLANNING.

DALLAS, W. D. Meteorologist, died August 5. He was assistant in the Meteorological Department to the Government of India from 1882 to 1906.

DALMATIA. Before the collapse of the Austro-Hungarian Monarchy, a crownland of Austria with Bosnia and the Herzegovina on the east and the Adriatic Sea on the west, from Croatia to Montenegro. The area is 4956 square miles; population Dec. 31, 1910, 645,666; estimated in 1913, 667,648. The Austrian census of 1910 placed the number of Austrian subjects at 634,855 of whom Croatian was spoken by 610,669, Italian by 18,028, and German by 3081. The Catholics numbered 539,074 and the Orthodox Greeks 105,338. Capital, Zara, with a population of about 14,000 (1910). Other important towns: Spalato (about 21,000); Ragusa (about 9000); and Cattaro (about 3000); all of which are seaports. The rival claims of Italy and the Jugo-Slavs constituted an important feature of the treaty discussions during the entire year and the question of Fiume threatened more than once to cause serious difficulties between Italy and the Allies and was not settled at the close of the year. For a discussion of the subject, see article WAR OF THE NATIONS.

DAMS. Naturally with State and municipal expenditures restricted and new water power developments held in abeyance on account of post-war conditions, there was no great activity in the construction of dams or many important works reaching completion. With the shortage of coal in many countries it was inevitable that hydro-electric development must take place to an extent never before realized and that water supply and irrigation projects as well as flood protection schemes will require dam construction on a large scale. The more notable works of the year, construction on which was really started,

were the Hetch Hetchy project in California and the Gilboa Dam of the extended Catskill water supply system of New York City.

HETCH-HETCHY DAM. The contract for the construction of the Hetch-Hetchy Dam which will form a reservoir from which San Francisco will be supplied was awarded on July 31st. A bid for a siphon spillway amounting to \$5,447,792.50 secured the contract and it was provided that the work should be completed in three years. Work was straightway begun and at the end of the year it was announced that the foundation had been unwatered by means of a log crib dam 40 feet high, 300 feet upstream from the main dam. This served to turn the water of the river into the diversion tunnel, which was 23 x 25 feet in section and 900 feet long. A dam 25 feet high just above the tunnel outlet prevented the water from backing up into the unwatered site. A steel caisson 120 feet long in three sections was arranged to be sunk immediately above and adjacent to the foundation of the main dam on the upstream side, so that the bottom could be entirely unwatered. It was hoped to have this work done by June, 1920, when the foundation concrete would be poured and work begun on the structure proper.

The site of the Hetch-Hetchy dam was located on the Tuolumne River about 150 miles east of San Francisco, and some 3600 ft. higher. The plans adopted called for one of the large masonry dams of the world. From the crest of the dam to the lowest estimate excavation is 311 ft., with a height above stream level of 212 ft., and an average excavation of 72 ft. with provision, however, for future enlargement. It was to be a straight cyclopean masonry gravity-section dam 600 ft. long, with a siphon spillway. The figures given in the advertisement for bids indicated the quantities of excavation and construction involved as follows: Excavation below stream level, 77,000 cu. yd.; excavation above stream level, 60,500 cu. yd.; cyclopean masonry, 298,800 cu. yd.; other concrete, 66,850 cu. yd.

GILBOA DAM. The Gilboa dam for the Schcharie development of the Catskill Aqueduct system was designed of two distinct types, with an overfall or masonry section 1300 feet in length, with steps on the down stream side leading to a spillway channel along the toe of the dam. The earth portion of the dam was designed with a masonry core, and heavy rock paving on the up stream slope, with a length of about 1000 feet. At the transition section the dam was to be flagged both up stream and down stream by a heavy masonry retaining wall to intercept the long slope of the earth section. At intervals of 80 feet from the foundation upward, dovetailed contraction joints would be inserted with a continuous vertical copper strip water-stop extending across the dam. The dam had the maximum height of 160 feet. See **AQUEDUCTS**.

WILSON DAM AT MUSCLE SHOALS. Further progress was made during the year on the so-called Wilson dam under construction by the United States government at Muscle Shoals on the Tennessee River at Florence, Ala. This dam was located near Nitrate Plant, No. 2, a War Department development during the war, to which it will supply, and in connection with a dam above and one below on the river will form an essential element in an important navigation project. The designs for the dam call for a

structure about 96 ft. high from bedrock to pool level and over 4000 ft. long. Containing nearly 1,000,000 cu. yd. of masonry the new dam will be among the largest in volume ever built. The full power development at the south end of the dam called for enough turbines to generate 300,000 to 375,000 horse power but at the beginning only four 30,000 horse power turbines were to be installed. The bulk of the power so generated was to be supplied to the nitrate plant. Navigation is provided for at the north end of the dam by a flight of locks, each 60 ft. wide, with 300 ft. available length.

During 1919 the work was in its preparatory stage and some 10 miles of railroad had been built to facilitate the construction. In August the first of six cofferdams was unwatered and during the autumn the rock was largely removed from the excavation for the cutoff wall along the heel of the dam. A construction bridge, with concrete piers, and track level rising above ordinary flood heights, was being built upon the apron of the dam. At the end about two-thirds of the total volume of 10,000 cu. yd. of concrete in the piers had been placed. This bridge was to carry four standard gauge tracks and will handle all supplies and material going to the dam. On a fifth and wider track were to be mounted seven 10-ton traveling tower derricks, with 90-ft. booms, which would lift the concrete in skips from the cars and place it in the dam. With these derricks at work by the spring of 1920, it would be possible to place 2000 yd. of concrete per day.

The aggregate for the concrete was to be secured from the river itself and a dredging fleet was assembled at Buck Island, nine miles below Florence. Two suction dredges will work at a bar of excellent sand and gravel, which will be screened and washed, and then towed upstream in barges for transfer to railway cars in which it will be delivered by rail to the three mixing plants. The largest plant, located on Jackson's Island in mid-stream, was equipped with two 4-yd. mixers; the other two each had two 2-yd. mixers.

At the end of 1919 work on the south side of the river at the power-house site was just beginning. A railroad connecting the nitrate plant with the abutment was nearly completed. Three additional traveling tower derricks were to handle the concrete for this section of the dam.

MIAMI FLOOD CONTROL DAMS. In the construction of the five retarding basin dams of the Miami Valley Flood Control Works, a large amount of the construction of 9,000,000 cubic yards of embankment is hydraulic fill, so that the use of this method was on an extraordinarily large scale. During 1919 pumping was in progress for the dams at Taylorsville and at Englewood, the one consisting of about 1,200,000 cubic yards, and the other 3,500,000 cubic yards. Two general methods were being used in the work; one is to break down, sluice, distribute and deposit the earth wholly by water, while the other is to excavate and transport the filling material mechanically and then to use the water to distribute and deposit it. This is the method to be followed at all the dams except Taylorsville and Lockington, and is the usual method of the flood control work. See **FLOOD PROTECTION**.

FRENCH DAM CONSTRUCTION. There was under discussion during the year in France a

scheme to increase the water supply of Paris by drawing upon the tributaries in the upper valley of the Loire. It was proposed to construct vast reservoirs between Nevers and Gien and at Villarest build a dam 60 meters (197 feet) high and capable of storing 175,000,000 cubic meters (46,230,000,000 gallons) which would give Paris a daily supply of 1,200,000 cubic meters (317,000,000 gallons). This project was meeting with opposition in the Loire district but seemed the most feasible plan to augment the insufficient water supply of Paris.

MURRAY RIVER DAM. In connection with a vast irrigation project near Albury, N. S. W., a large dam was to be built on the Murray River forming a reservoir which would extend into Victoria. The main dam was designed to be 3601 ft. long, divided into a 2700-ft. earth section, a 740-ft. concrete spillway and a 1061-ft. outlet works. It is only about 85 ft. at the deepest part of the river. The discharge over the dam will amount to about 100,000 cu. ft. per sec., and a portion of this was to be utilized for hydro-electric development. Other parts of the irrigation project comprise an irrigation canal, control of the Murray River by locks and dams, and future control of other nearby rivers.

There will be a total reservoir capacity of 1,000,000 acre-feet and a reservoir area of 30,300 acres, which brings it up among the large irrigation projects of the world. About \$8,000,000 was to be expended by the governments of New South Wales, South Australia, Victoria and the Commonwealth of Australia.

DANISH LITERATURE. See SCANDINAVIAN LITERATURE.

DANZIG. An important commercial city formerly belonging to Germany, but constituted a free city by the terms of the Treaty of Versailles in 1919. Its population according to the German census of 1910 was 170,337. The shipping in 1918 comprised 1237 vessels with a total of 455,127, a falling off of more than one-half since 1913. About 57 per cent of the tonnage was German, the remainder being chiefly Norwegian, British, Swedish, and Danish. The provisions in regard to Danzig will be found in section 11 of the Treaty. By this the principal allied and associated Powers undertook to establish the city of Danzig and a certain defined surrounding area as a free city to be placed under the protection of the League of Nations. The Allied Powers engaged to arrange a Treaty between the Polish government and the free city with a view to including the latter within the Polish customs frontier and to insuring to Poland the free use and service of waterways, docks, etc., of the control and administration of the Vistula and the railway system, and of the right to improve waterways, docks, etc. See WAR OF THE NATIONS.

DARTMOUTH COLLEGE. A non-sectarian institution of higher learning, founded at Hanover, N. H., in 1769. In the fall of 1919 there were 1673 undergraduates and 65 graduates enrolled. The faculty contained 121 teachers and 33 administrative officers. Productive funds amounted to \$4,500,000, and the total income was \$450,000. The library contains 150,000 volumes. During the year a new swimming pool and a new dormitory were constructed. President, Ernest Martin Hopkins, Litt.D., LL.D.

DAVIDSON, SIR JAMES MACKENZIE. British surgeon and authority on radiology, died in

London, April 7. He was born Dec. 6, 1856; educated at Buenos Aires and in London, graduated at Aberdeen in 1882, and became a lecturer on ophthalmology there, practicing surgery at the same time. He went to London in 1897 and devoted his time to X-ray treatment in which he did valuable work and gained a wide reputation. He invented a method of localization for foreign bodies in the eye and for bullets, etc. At the time of his death he was consulting surgeon to the Röntgen Ray Department, Charing Cross Hospital. His publications include the following: *The Electric Light Applied to the Ophthalmoscope*, (Lancet, 1886); *Röntgen Rays and Localization*, (British Medical Journal, 1898); *Stereoscopic Skiagraphy*, (British Medical Journal, 1898); *Localization of Foreign Bodies in Eyeball and Orbit*, (Trans. IX. International Ophth. Congress, Utrecht), and various articles in the Trans. of the Ophthalmological Society of the United Kingdom; *Notes of Cases Treated by Radium Bromide Rays*, (British Medical Journal, 1904).

DAVIS, WALTER GOULD. American meteorologist, died at Danville, Vt., April 3. He was born at Danville, Vt., in 1851, and early devoted himself to scientific work in civil engineering. He succeeded Dr. B. A. Gould in charge of the Astronomical Observatory at Cordoba where the Argentine Meteorological Service was installed (1885). He was afterwards of the National Weather Bureau at Buenos Aires. He brought the service into the front rank of meteorological departments. During his administration more than 2000 stations were established. He was an active and progressive erector. Not only did he cover the mainland but he extended the service into the Antarctic province to the south. He enjoyed a high reputation among meteorologists everywhere.

DAVIS, WILLIAM JAMES. Theatrical manager, died at Chicago, May 10. He was born in Washtenaw County, Mich., Feb. 8, 1844; served in the United States navy during the Civil War and was in business in government employ until 1873. He afterwards became manager of theatrical companies in Chicago and as member of the Hainen and Davis Company and owned the new Illinois theatre; was one of the owners and managers of the Iroquois theatre destroyed in a fire that caused a great loss of life and was prosecuted on account of it, but acquitted after a long trial. He retired from business in 1914.

DAYLIGHT SAVING. In 1919 the Daylight Saving time scheme became effective at 2 A. M. on Sunday, Mar. 30, 1919, in accordance with a report submitted to the Director General of Railroads by the Committee on Transportation of the American Railway Association. This report was in connection with the Federal Statute "To Save Daylight and to Provide Standard Time for the United States," which became effective at 2 A. M. Sunday, Mar. 31, 1918. In General Order No. 61, issued by the Director General of Railroads Mar. 15, 1919, the following provisions in regard to the execution of this statute figured:

First, (a) At 2 A. M. Sunday, Mar. 30, 1919, and on the last Sunday in March of each year thereafter, all clocks and watches in train dispatchers' offices, and in all other offices open at that time, must be advanced one hour, to indicate 3 A. M.

(b) At 2 A. M. of the last Sunday in October of each year all clocks and watches in train dispatchers' offices, and in all other offices open at that time, must be turned back one hour, to indicate 1 A. M., and regular trains must be held to conform to schedules after change in time.

Further provision was made for the comparison of watches with the train dispatcher's and conforming to the changed standards of time all offices.

REPEAL OF DAYLIGHT SAVING LAW. During the year 1919, an active movement was in progress to repeal the Daylight Saving Law, which had been passed by Congress and approved Mar. 19, 1918. This measure was sponsored in large part by the farmers, who complained that it increased the length of days and was not feasible in the ordinary conduct and economy of the farm. The claim was made that the transportation from rural districts to the city was in advance of natural milking time, and that the dew was on the vegetation an hour longer during the working day. Those dwelling in cities and the laboring interests were generally in favor of the bill, which afforded opportunity for recreation and also saved on artificial illumination. It was claimed that the repeal of the bill was also advocated by public utilities corporations engaged in the sale of gas and electricity for lighting. Accordingly House of Representatives Bill 3854, entitled "An Act for the Repeal of the Daylight Saving Law" was duly passed by both houses and presented to the President, by whom it was returned with a veto, in which he discussed the comparative advantages and disadvantages of the measure. He stated that "the immediate and pressing need of the country is production, increased and increasing production, in all lines of industry. The disorganization and dislocation caused by the war have told nowhere so heavily as at the industrial centres. It is to these the Daylight Saving Law is of most service. It ministers to economy and to efficiency, and the interests of the farmer are not in all respects separated from these interests. He needs what the factories produce, along with the rest of the world. He has profited by the prosperity which their success brings about. His own life and methods are more easily adjusted, I venture to think, than those of the manufacturer and merchant." The bill, however, was passed in the House of Representatives over the President's veto on August 19th by a vote of 223 to 101, and the Senate by a vote of 57 to 19 concurred in the action of the House.

NEW YORK CITY RETAINS DAYLIGHT SAVING. In the City of New York an ordinance providing for the local use of daylight saving independent of the repeal of the National Act, was passed unanimously by the Board of Aldermen and approved by the Mayor on October 24th. This ordinance provided that the clocks were to be set ahead the last Sunday in March, 1920, and restored on the last Sunday in October, as was done under the Federal plan, repealed in 1919.

At the end of the year the advantages of daylight saving were under discussion in 16 different States, and it was believed that proper legislation would be enacted to set forward the clocks in 1920, as was done under the former Federal statute which was repealed. See AGRICULTURAL LEGISLATION.

Y-B-10-7

DEAKIN, ALFRED. Former premier of Australia, died at Sydney, New South Wales, October 7. He was born at Melbourne, Aug. 3, 1856, and educated in the schools and the university of that city. He was elected to Parliament in 1879 and was made Minister of Public Works and Water Supply in 1883. He was a member of the Federal Council from 1889 to 1899, and he was the first Attorney-General of the Commonwealth, 1901-03. Afterwards he was Prime Minister for three year terms, the last being 1909-10. He was president of the commission to the San Francisco expedition in 1915. He wrote a number of books on irrigation.

DEANE, SIR HENRY BARGRAVE. British jurist, died in London, England, April 21. At the time of his death he was a member in the High Court of Justice. He was born, Apr. 28, 1846; and educated at Winchester and Oxford, winning the prize in 1870 for the Oxford International Law Essay. After continuous work in his profession he entered the Probate Divorce and Admiralty division of the High Court. He was raised to the bench on Feb. 1, 1905. He rendered decisions in many important cases and was celebrated among the judges of his time for his great knowledge of practice and his keen sense of humanity. In the matter of divorce he favored the complete equality of the sexes and he believed that the reports of divorce suits should be confined to a statement naming the wrong-doer and the person obtaining release without going into details.

DEATH RATE. See VITAL STATISTICS.

DE BOOY, CAPTAIN THEODORE. Explorer and archaeologist, died at Yonkers, N. Y., February 18. He was born in Holland in 1883, came to the United States in 1906 and was in charge of the West Indian archaeological work of the Museum of the American Indian in New York.

DEFICIENCY DISEASES. The increased cost of food which began during the war involves the possibility of defective nourishment in all small income people throughout the world. It is not alone the reduction in quantity but in the possibility that essential ingredients of food shall be missing from the dietary, that makes the question one of such gravity. Before the war the problem of deficiency diseases was serious enough and at least three well known maladies were being investigated by the food sanitarians of the world from this angle, to wit, scurvy, beri beri and pellagra. The first named no longer appears in its mediæval aspect, but occurs in scattered incidence and more or less masked. It was practically expelled from Europe when potato culture was introduced into that continent and was similarly stamped out of the British navy by the lime juice ration. It does not exist with a diet comprising fresh vegetables and fruits. Nevertheless, to assume that it no longer exists is an error, for according to the statistics of the United States Marine Hospitals there were over 800 cases treated in these institutions between 1873-1899. Infantile scurvy or Barlow's disease is not rare and is attributed to artificial feeding and the pasteurization of milk. That scurvy did not develop in a wholesale manner during and after the great war seems due to the fact that fresh vegetables were usually obtainable, and in fact were often the major portion of the diet. Had the public as in past centuries been compelled to subsist principally on a diet of cured fish

and flesh the outcome would surely have been different. Beriberi occurs as a menace only where the inhabitants who normally subsist principally on rice have changed from the whole to the decorticated or polished grains. In similar manner the extensive use of other decorticated cereals—wheat—has long been held responsible for defective nutrition, but this is largely a bugbear exploited for personal ends by commercialists, the fallacy being the disregard of the fact that those who subsist on finely milled flour get plenty of nourishment of other kinds which gives a balanced diet. This leads us to the vitamin theory of deficiency diseases, which gives a very simple explanation of these affections. This theory, which has largely displaced an older one based on deficiency of mineral matter as a cause of disease (the latter, however, still having its own province), takes cognizance of certain more or less hypothetical organic substances which are necessary, although only in minute quantities for the proper performance of the body functions and nutrition. Vitamines occur in a great number of food articles, but their destruction by heat and food preparation cuts down the available list to a great extent. Since vitamines occur in fresh fruits and fresh milk, we can understand the genesis of scurvy when these articles are excluded from the diet and the quick recovery from and prevention of scurvy when the patient is fed with them. We can also understand why pasteurization by destroying the vitamines of milk may be injurious to certain infants. Further it is clear why fowls who live on polished rice may develop a deficiency disease because they eat the grains raw. On the other hand the Japanese who eats cooked polished rice and contracts beri beri is as much a puzzle as the mediæval European who got rid of scurvy by eating cooked potatoes. The only way to make these views harmonize is to assume that the vitamines vary greatly among themselves and that while some are heat-unstable others are heat-stable within certain limits. The disease beri beri occurs in the form of an inflammation of the nerves and resulting paralyses and is not easy of comprehension as a result of unbalanced eating. In Spain both men and animals who live on chick peas develop a somewhat similar condition known as lathyrism but this passes out and out as a food intoxication.

The third of the three alleged deficiency diseases and by far the most important is pellagra, for while the other two are within control this affection is growing in extent and is invading strata of society which were once believed immune. Believed for many decades to result principally from a predominant diet of maize and spoiled maize at that, it has now become apparent that this peculiar malady which attacks the skin, gastro-intestinal tract and nervous system—incidentally causing much insanity—is far more complex and subtle than has hitherto been believed. Only recently it has invaded communities where it had never before been encountered and has attacked people in comfortable circumstances who certainly enjoy a sufficiency of food. From the peculiar symptoms of this affection it is easily overlooked and confused with other maladies. The skin alterations resemble those due to ordinary exposure, the affections of the mucous membranes have nothing to distinguish them from ordinary stomach

and bowel troubles and the nervous symptoms and insanity are also devoid of individuality. Masked pellagra has found its way to insane asylums in Northern States long before the disease was recognized as endemic in the South, this fact being apparent from a study of old case reports of insanity. It is hardly likely that pellagra can be traced to lack of vitamines in the diet or that it will be curable wholesale by diet alone.

Of minor deficiency diseases there have been several described, as a form of dropsy without heart or kidney disease seen throughout the warring countries, night blindness and others less well known. As yet it is far too soon to attempt an account of deficiency disease during and after the war. This will be a task for the future.

DELAWARE. POPULATION. The population of the State in 1910 was 202,322, and on July 1, 1919, it was estimated to be 218,722.

AGRICULTURE. The following table is compiled from a report of the Federal Department of Agriculture.

Crop	Year	Acres	Prod. Bu.	Value
Corn	1919	230,000	6,900,000	\$10,005,000
	1918	230,000	7,130,000	9,697,000
Wheat	1919	145,000	1,740,000	3,708,000
	1918	133,000	1,729,000	3,838,000
Potatoes	1919	11,000	913,000	1,141,000
	1918	12,000	1,044,000	1,462,000
Sweet potatoes	1919	7,000	966,000	1,063,000
	1918	6,000	720,000	900,000
Hay	1919	82,000	a 105,000	2,730,000
	1918	75,000	a 94,000	2,632,000

a Tons.

FINANCE. The balance on hand at the close of the fiscal year 1918 was \$571,195; that at the beginning of the year was \$280,221. The cash receipts for the General Fund for the year were \$1,428,848, and the expenditures, \$1,311,404. The outstanding indebtedness of the State on Jan. 13, 1919, was \$1,581,785.

CHARITIES AND CORRECTION. The following is a list of the public institutions of the State: Educational, Delaware College, Newark; Hospitals, State Hospital for the Insane, Farnhurst; Delaware Hospital, Wilmington; Homeopathic Hospital, Wilmington; Physicians and Surgeons Hospital, Wilmington; The Hope Farm Sanitarium, Marshallton; Almshouses, at Farnhurst, Wyoming, and Georgetown; Penal, State Penitentiary, Wilmington; Ferris Industrial School, Marshallton; Industrial School for Girls, Wilmington.

EDUCATION. The expenses for education in the State in the school year ending June 30, 1919 were \$1,129,010. The total enrollment in the schools was 37,440, and the average enrollment was 30,024, while the average attendance was 28,216. There were 1119 teachers employed with an average salary of \$662.10 per year. On Apr. 14, 1919, the Governor approved an elaborate School Code for the State, covering the State, county and district administrative machinery and personnel and powers, and such matters as teachers' certificates, salaries (\$400 being stated as the minimum), school attendance, and State support of schools. This code is the result of the study and the report of a school survey commission appointed as the result of an Act of 1917.

OFFICERS. Governor, John G. Townsend; Lieu-

tenant-Governor, Lewis Eliason; Secretary of State, Everett C. Johnson; Attorney-General, David J. Reonhardt; Commissioner of Insurance and Banking, Thomas R. Wilson; Treasurer, William J. Swain; Auditor, W. G. Roe; Commissioner of Education, Arthur R. Spaid.

JUDICIARY. Chancellor, Charles M. Curtis; Chief Justice, James Pennewill; Associate Justices, Thomas B. Heisel, Herbert L. Rice, William H. Boyce, Henry C. Conrad. See CHILD LABOR.

DENMARK. A Scandinavian kingdom of northern Europe, which consists of the peninsula of Jutland, the islands of Fünen, Lolland, etc., nearby, and the outlying island of Bornholm in the Baltic. It lies between 54° 34' and 57° 44' N. latitude, and between 8° 5' and 12° 40' E. longitude. These boundaries have existed since the war of 1864 with Germany, which country acquired at that time the duchies of Schleswig-Holstein and Lauenberg. For the question of the determination of Schleswig, see WAR OF THE NATIONS.

AREA AND POPULATION. The total area is 15,582 square miles, and the total population in 1916 was 2,940,979. The capital, Copenhagen, had a population in 1916 of 506,390, without suburbs; with suburbs, 605,772. The population is almost entirely Scandinavian. In fact, in 1911, among the inhabitants of Denmark proper, 96.66 per cent were born in Denmark, 0.07 per cent in the colonies, 0.15 per cent in Norway, 1.45 per cent in Sweden, 0.97 per cent in Schleswig, 0.47 per cent in other parts of Germany, and 0.23 per cent in other foreign countries. This makes the foreign-born population (in 1911) only 3/27 per cent of the total.

EDUCATION, ETC. Between the ages of seven and 14 elementary education is free and compulsory. The schools are maintained by communal taxes. In 1917 there were 3485 public schools (67 in Copenhagen, 158 in other towns), and 3243 in rural districts throughout the country. The total number of pupils in 1917 was 404,000. Besides the elementary schools there are 13 government grammar schools. These 13 government schools and 142 private schools together with other private schools, had, in 1917, an attendance of 58,000 pupils. In 1479 was founded the University of Copenhagen, which has five faculties, 100 professors and teachers, and about 2900 students. Women are admitted to the faculties on equal terms with men. Lutheranism is the established religion, but there is full religious toleration. The church is under seven bishops, who have no political functions, of whom the Bishop of Roeskilde is the metropolitan.

PRODUCTION. The chief products are wheat, oats, rye, barley, potatoes and other roots, cattle and other live-stock, and dairy products. The 1918 root-crop is shown below, in comparison with that of 1917, and with the 1909-13 average. The figures are in metric tons, as follows:

Article	1918	1917	1909-13, average
Potatoes	1,105,100	867,700	840,000
Carrots	129,600	103,900	228,800
Beets	5,266,700	4,213,900	4,414,600
Kohlrabi	4,558,900	5,482,500	4,554,600
Turnips	2,334,600	2,750,600	2,738,500
Sugar beets	944,400	882,700	788,500

The acreage and production of the chief crops are as follows for the years 1917 and 18:

Crops	Area		Production	
	1917 Acres	1918 Acres	1917 Cwts.	1918 Cwts.
Wheat	132,692	142,052	1,169,309	1,723,000
Rye	441,307	549,165	2,253,166	3,233,000
Barley	599,165	556,995	3,893,187	4,674,000
Oats	992,512	947,595	5,465,384	6,034,000
Mixed grain.	488,447	483,877	2,751,676	3,249,000
Potatoes ...	144,633	186,892	8,677,275	5,525,000

Live-stock reported in Denmark proper on July 15, 1918 numbered 545,000 horses (525,785 on May 15, 1915); 2,123,722 head of cattle (2,417,125 on May 15, 1915); 470,051 sheep (533,137 on May 15, 1915); 620,880 swine (1,918,975 on May 15, 1915); and 9,884,000 hens.

The fisheries are an important part of Danish activity. They are, for the most part, on the west coast of Jutland, Esbjerg being the centre of the industry. It was estimated that the total catch for the year 1918 was 5845½ tons, valued at 4,091,825 crowns (\$1,096,609). Of this quantity about one-third was torsk (cod) and two-thirds haddock and plaice. Most of the torsk was salted and most of the haddock went to Germany. There is practically no fishing activity during the months of January and February.

The labor situation in Denmark has improved with the increased cost of living. Practically all branches of labor had attained improvements in their social conditions at the beginning of 1919. The vast majority of the laborers in Denmark have heretofore worked about 58 hours weekly, whereas a new agreement on the part of employers reduced that time to 50½ hours weekly. This called for a reduction in working hours of from one-half to one hour daily. Besides having obtained full compensation for the reduction in their working hours, the laborers have attained a general increase in wages amounting to considerably over 100 per cent. The greater part of this increase had formerly been accorded to the laborers in the shape of temporary allowances owing to the increased cost of living, but by the new agreement these allowances have been included in the regular wages, with the exception of certain extraordinary allowances accorded in August, 1918. For example, the general wages of mechanics are from £6 to £7 per week, as compared with £3 before the war.

The agreements which have been concluded embrace among others 30,000 farm laborers, 28,000 laborers from the iron industries, 8000 to 9000 from the textile industry, 6000 carpenters, 5000 painters, 4500 laborers from the shoe industry, 4000 masons, 4000 laborers from the slaughterhouses, 3000 tailors, 2500 laborers from the brickyards, 2500 from the wood industries, besides a number from minor industries.

With regard to the ever-increasing problem of housing, the *London Economist*, issue of Dec. 6, 1919, reported that the scarcity of housing accommodation was becoming more and more pronounced, and that the corporation of Copenhagen had then found themselves under the necessity of finding homes for more than 10,000 homeless people. Also, the necessity of arresting the rise in prices was becoming more and more evident. Among the remedies suggested was a higher bank rate, 12, 14, and even 16 per

cent having been suggested, which was regarded by many as the most effective remedy. Prices for the common necessities of life for the average family have doubled in amount since 1914.

The first two months of 1919 witnessed the greatest number of unemployed in most of the towns of Denmark. In the town of Odense, in particular, which has a population of 47,000, there were 4000 unemployed. This figure, however, has by now decreased to below 3000, for the cloth mills are again operating since the receipt of wool supplies from England and America. The lumber and building industries are unusually well employed.

COMMERCE. The following table gives the principal imports and exports of Denmark for the year 1918.

Article	Imports	Exports
Meats:		
Bacon and pork.....kilos.	2,771,400	
Beef, fresh.....do.	9,678,400	
Casings, stomachs, etc..do.	185,900	1,973,900
Live animals:		
Horses.....head	3,051	29,201
Cattle.....do.	26	113,840
Butter.....kilos.	14,572,300	
Milk and cream.....do.	5,399,000	
Eggs.....dozen	272,687	
Fish, all kinds.....kilos.	5,428,700	19,442,600
Wheat.....do.	534,600	
Rye.....do.	1,052,400	5,744,300
Barley.....do.	266,700	7,773,900
Maize.....do.	2,663,200	5,100
Flour (wheat).....do.	5,586,000	264,300
Flour (rye).....do.		5,271,500
Grass seed.....do.	2,405,000	
Beet seed.....do.	852,200	
Oil cakes.....do.	360,600	
Potatoes.....do.	700	46,347,600
All other vegetables and fruits.....do.	6,288,900	13,088,800
Rice, rice meal, rice starch, etc.....do.	4,071,500	
Coffee.....do.	2,791,800	36,300
Tea.....do.	290,000	
Cocoa.....do.	1,072,400	
Sugar.....do.	294,500	5,772,400
Tobacco:		
Raw.....do.	1,642,300	
Cigars, cigarettes and smoking.....do.	69,800	
Spirits (whisky and cognac).....liters.	272,600	
Wool.....kilos.	65,400	80,500
Cotton.....do.	45,000	
Hemp.....do.	100,900	
Yarn and thread:		
Silk.....do.	8,500	
Wool.....do.	47,100	
Cotton.....do.	534,700	
Rope and twine.....do.	150,900	
Silk goods.....do.	743,000	
Woolen goods.....do.	687,400	
Cotton goods.....do.	1,243,900	
Linoleum.....do.	498,700	
Hides and skins.....do.	96,400	3,316,800
Leather.....do.	162,400	
Boots and shoes.....do.	24,400	
Tallow.....do.	1,800	210,400
Stearin.....do.	340,800	
Fish oil (cod-liver oil, etc.).....do.	1,748,900	
Petroleum.....do.	11,078,200	1,500
Gasoline.....do.	855,300	
Other fuel and mineral oils.....do.	5,773,400	
Turpentine.....do.	124,000	
Tar.....do.	3,133,100	
Rosin.....do.	329,800	
Timber and lumber, cu. meters.....do.	986,204	
Wood for fuel.....do.	125,669	
Barrel staves.....kilos.	513,000	
Wood pulp.....do.	60,297,700	
Matches.....do.	782,600	
Flowers and bulbs.....do.	1,588,900	
Barks.....do.	296,500	
Cork.....do.	744,400	
Paper, and mfrs. of.....do.	23,306,700	
Paint and colors.....do.	2,253,200	
Calcium carbide.....do.	4,581,800	
Caustic potash.....do.	482,500	
Caustic soda.....do.	716,800	

Article	Imports	Exports
Calcium soda.....kilos.	3,201,700	
Kennet extract.....do.		506,000
Coal.....tons	1,751,240	
Coke.....do.	292,623	
Briquettes.....do.	117,561	
Firebricks.....kilos.	7,320,600	
Building bricks.....do.	9,932,000	
Tile.....do.	1,557,000	
Pipes and tubes.....do.	9,286,800	
Crockery and sanitary equipment.....do.	1,283,900	
Porcelain.....do.	691,700	
Plate glass.....do.	4,186,300	
Glassware.....do.	5,020,800	
Iron and steel:		
Pig iron.....do.	29,184,200	
Scrap iron.....do.		28,250,400
Iron beams.....do.	62,827,400	
Hoop iron.....do.	7,718,900	
Iron plates.....do.	24,196,000	
Galvanized plates.....do.	202,800	
Iron and steel, n. e. s.....do.	34,385,300	
Agricultural implements.....do.	4,487,200	
Screws, nuts and bolts.....do.	1,641,700	
Sewing machines.....do.	280,600	
Nails.....do.	1,265,100	
Copper and brass, raw.....do.	488,000	
Zinc, raw.....do.	1,552,800	
Lead.....do.	190,000	
Metal waste.....do.		1,187,100
Manufactures of copper.....do.	383,600	
Zinc plates.....do.	735,000	
Lead plates.....do.	490,700	
Bicycles.....do.	166,700	
Automobiles, complete.....number	241	

During January, 1919, there was an increased importation from England and the United States, considerable quantities coming under Danish-American agreements, besides some shipments not under that agreement. The importation of coal, salt, and other raw materials from Germany was resumed, and an increasing amount of coal arrived from England.

COMMUNICATIONS. Denmark proper, not including Copenhagen, had, at the end of 1917, 4197 miles of roads, besides 23,375 miles of byways. Railways of a total length of 2644 English miles covered the country, of which 1283 English miles belonged to the State. On Mar. 31, 1916, the total value of the State railways was 325,539,187 kroner. The Danish State railways having been for a considerable time in need of more freight cars, in November, 1918, ordered 750 from the "Scandia" factory in Randers, Denmark. This gave work to 500 people who had been unemployed. A set of wheels in 1918 cost \$348 while before they had only cost \$40. At the beginning of 1917, Denmark had 3570 vessels, with a total tonnage of 595,252. On Jan. 1, 1918, the gross tonnage of Danish vessels was 577,822 for steamships; 97,316 for motorships; 103,575 for sailing vessels. There are 1219 post offices which carried, in 1917-18 213,541 letters and 193,398,942 samples and printed matter. The length of the State telegraph lines on Mar. 31, 1918 was 2258 English miles, with 188 offices. On the same date the length of the State telephone wires, added to those of private companies, was 419,988 English miles.

One of the features of the increased railway traffic during the year was a pressing demand for railway bridges across the Little Belt, between the Island of Funen and Jutland, and across the Storstrom between the islands of Sjælland and Falster. Such bridges would form an important link in the Danish-German railway traffic, and the director-general of the Danish state railways during the year promised that measures for their construction would be

laid before the Danish Legislature if the plans are ready in time. To show the development of this trend of transportation some interesting figures in connection with the traffic across the two waters in question may be cited. The steam ferry traffic across the Little Belt in 1893 was 110,000 tons of freight; in 1913 this rose to 562,000 tons and in 1917 to 880,000 tons. The passenger traffic was 222,000 in 1893, 598,000 in 1913, and 713,000 in 1917, and the actual expense of the ferry traffic, exclusive of interest on cost of material and harbors, repairs, etc., rose from 144,000 krone (\$38,000) in 1893, to 393,000 krone (\$98,250) in 1913, and 873,000 krone (\$218,250) in 1917. An argument in favor of a bridge across the Little Belt was that it would greatly enhance the practical capacity of the rolling-stock stationed in the Island of Funen, and at the same time would save time, increase the comfort of passengers, and facilitate traffic.

FINANCE. The budget of 1918-19 showed a total revenue of 192,667,161 kroner, and a total expenditure of 130,015,759 kroner. Abstract of the budget for 1919-20 is given below:

<i>Current revenue</i>	<i>Kroner</i>
Balance of domain revenues.....	1,786,236
Balance of State undertaking.....	13,541,241
Interest on outstanding debt.....	7,519,506
Balance of lotteries.....	1,509,198
Balance of funds, etc.....	639,517
Direct and indirect taxes.....	172,073,900
Separate revenues.....	2,262,196
Total revenue.....	199,331,794
	(£11,073,988)

ing the last several months. Shares, without any exception except in degree, had receded very materially all around. The recent depression was attributed to a number of causes—the uncertainty generally of the political position, the exorbitant demands and constant unrest of labor, and the exceedingly high tax rates already in force, with the prospect of still higher to come. Dr. Edward Brandes, the Minister of Finance, admitted that the new taxes, including the tax on capital, would in some cases amount to 100 per cent of the income in question; in particularly flagrant cases it was even said that the tax would amount to 105 per cent of the income.

DEFENSE. The national militia constitutes the Danish army, in which all able-bodied subjects must serve, except the inhabitants of the Faroe Islands and Iceland. The military age is from 20 to 36. During the first eight years, the men are in the active army, and during the second eight years, in the extra or territorial reserve. Upon joining the army, recruits are trained for 165 days in the infantry, 280 days in the field

<i>Current expenditures</i>	<i>Kroner</i>
Civil list and appanages.....	1,222,000
Rigsdag.....	1,500,000
Interest and expenses on State debt.....	26,769,458
Council of State.....	185,875
Ministry of Foreign Affairs.....	1,250,243
Ministry of Public Worship and Instruction.....	22,702,072
Ministry of Justice.....	12,480,409
Ministry of Interior.....	23,111,691
Ministry of Agriculture.....	5,432,178
Ministry of War.....	16,942,922
Ministry of Marine.....	10,475,000
Ministry of Finance.....	12,902,554
Ministry of Public Works.....	2,228,364
Ministry of Commerce and Navigation.....	2,676,102
Pensions.....	5,188,900
Iceland.....	279,000
Total expenditure.....	145,346,763
	(£8,074,820)

In the budget no provision is made for the extraordinary expenses incurred during the war. The expenses of the Ministry of War and the Ministry of Marine were, respectively:

1915-16, 68,636,113 kr. and 20,374,038 kr.; 1916-17, 85,228,919 kr. and 25,543,747 kr.; 1917-18, 86,120,751 kr. and 30,377,041 kr.

The public debt at the close of the financial year, 1918, was placed at 629,200,000 kroner, having increased by about 300,000,000 during the war; the assets of the State were placed at 1,113,200,000 kroner. The nature of the debt had changed to a very marked degree during the past few years. Whereas it had been mainly held outside the country, it was now placed mainly within, former foreign holders having been largely bought out by native investors.

Money is now fairly scarce. Only a few years ago Denmark's commercial balance was completely satisfactory, but now it is unfavorable. For September, 1919, the exports amounted to 86,000,000 kr., whereas the imports amounted to 171,000,000 kr. In June the position was still worse, the figures being 53,000,000 kr. and 273,000,000 kr. respectively. For the first three quarters of 1919 the exports amounted to a total of 542,000,000 kr., as against the formidable aggregate of 1,899,000,000 kr.

According to the *London Economist*, issue of Nov. 22, 1919, the Copenhagen Stock Exchange had shown a state of universal depression dur-

artillery, one year in the garrison artillery, and 200 days in the cavalry. According to the latest available figures, there were 15 regiments of infantry making up 53 battalions, 4 regiments of cavalry, 4 garrison artillery battalions, 3 battalions of engineers, and 2 regiments of field artillery, having a total of 20 four-gun batteries. The peace strength of the active army was placed at about 820 officers and 12,900 men. The fighting strength of the field army was placed at about 50,000 men. The latest figures for total war strength are from 1914, when it was placed at 1600 officers and 83,734 men.

The navy serves only for coast defense. It consists of 5 monitors, 2 small cruisers, 10 submarines, 16 torpedo boats, and other small craft.

GOVERNMENT. For administrative purposes, the country is divided into 18 counties, each under a governor. Iceland is a self-governing dependency, with its own constitution and administration. The legislative organ of Iceland is the Althing, consisting of 40 members, of whom 34 are elected by popular suffrage and six by proportional representation. The trade of Greenland, Denmark's other large colonial possession, is a State monopoly.

The reigning king in 1919 was Christian Charles Frederick Albert Alexander William, whose title is Christian X. He was born Sept. 26, 1870; married Apr. 26, 1898, to Princess

Alexandrine of Mecklenburg, who was born Dec. 24, 1879. He was proclaimed king on the death of his father, May 14, 1912. The heir-apparent is Prince Christian Frederick, born Mar. 11, 1899. There is a second son, Prince Knud, born July 27, 1900. The other relations of the king are as follows: His brother, Prince Karl, born Aug. 3, 1872; elected king of Norway under the title of Haakon VII, 1905, and married July 22, 1896, Princess Maud Alexandra of England, whose son the Crown Prince Olav, was born July 2, 1903; other brothers, Prince Harald, born Oct. 8, 1876, and Prince Gustav, born Mar. 4, 1887; sisters, Princess Ingeborg, born Aug. 2, 1878; Princess Thyra (Mar. 14, 1880); Princess Dagmar (May 23, 1890). King Christian's father, Frederick VIII, was a brother of Queen Alexandra, of King George I of Greece, and of the former Dowager Empress of Russia.

In 1919, the Danish cabinet ministers were as follows: President of the Council and Minister of Justice, Carl Theodor Zahle; Minister of Foreign Affairs, Erik Scavenius; Minister of the Interior, Ove Rode; Minister of Defense, Peter Munch; Minister of Finance, Edvard Brandes; Minister of Public Instruction, Sören Keiser-Nielsen; Minister of Ecclesiastical Affairs, Thorvald Povlsen; Minister of Agriculture, Kristjan Pedersen; Minister of Public Works, Jens Hassing Jörgensen; Minister of Commerce and Navigation, Christopher Hage; Ministers for Iceland, Jon Magnusson, Sigurdur P. Eggerz, and Sigurdur Jonasson; Minister without Portfolio, J. A. M. Stauning. The Zahle ministry having been attacked violently by the parties of the Left resigned on March 1st but it was impossible to frame a new ministry and after two weeks it resumed office. The Schleswig question agitated the public throughout the year. The proposed plebiscite was objectionable to the government if it should mean that aliens would be incorporated in Denmark.

DENNIS, JOHN. Journalist, died at Rochester, N. Y., December 31. He was one of the best known newspaper men in his part of the State, having been associated with *The Democrat and Chronicle* for 40 years. He was born at Waterloo, N. Y., in 1844. Early in his career as a journalist he was cited by a court at Rochester to reveal the source of information on which a certain article that he had written was based. He refused and was thereupon ordered to jail for contempt but under pressure of public disapproval was released the next day. His course aided in establishing the precedent that the newspaper reporters were not obliged to reveal the source of their information.

DE PAUW UNIVERSITY. A co-education institution, founded in 1837 at Greencastle, Ind., under the auspices of the Methodist Episcopal Church. In the summer session of 1919 there were 88 students; in the fall, there were 373 men and 480 woman students. The faculty numbers 53. Productive funds, \$2,115,796, and the income for the year, \$161,379. The library contains 48,000 volumes. President, George Richmond Grose, D.D., LL.D.

DES MOINES, IA. See MUNICIPAL OWNERSHIP.

DESTROYERS. See NAVAL PROGRESS.

DETROIT, UNIVERSITY OF. An institution of learning for men, under the auspices of the Roman Catholic Church. The enrollment in the fall of 1919 was 1450, and there were 69 mem-

bers in the faculty. The library contained 20,000 volumes. The university was founded at Detroit, Mich., in 1877. President, William T. Doran, S.J.

DETROIT. See WATER-WORKS.

DEUTSCH de la MEURTHE, HENRY. French patron of aviation, died in Paris, November 24. He was among the first to advocate the form of motor now in use in aircraft. He was born in Paris in 1846 and with his brother succeeded to the direction of the important industrial establishments founded by his father. He wrote while still young a valuable treatise on *Le pétrole et ses applications*, and at the time of the Paris Exposition he predicted the success of the motor above mentioned. He founded the prize of 100,000 francs gained by Santos-Dumont in 1901, and five years later he presented to the war ministry a dirigible which succeeded in making the flight to Verdun. After the Reims meeting of 1909 he endowed the Aéro-technical Institute of Saint-Cyr, and soon afterwards founded a chair of aeronautics at the Conservatory of Arts and Crafts. He was president of the French Aéro Club and honorary president of the General Aéronautic Association.

DEVELLE, JULES. French senator, died in Paris, Oct. 31. He had served in former cabinets as minister of foreign affairs and of agriculture. He was born at Bar-le-Due Apr. 12, 1845, studied in the Lycée of that town, then went to Paris where he took courses in the school of law and was admitted to the bar in 1866. In 1872 he entered the administrative service, and in 1887 was elected to the Chamber where he served until 1898. Failing in the following elections he was appointed councillor of state, and on Feb. 27, 1910, senator. He was several times cabinet minister, and it was he who chose for his secretary under the Goblet ministry the young lawyer afterwards president of the republic, M. Raymond Poincaré. He belonged to the party of the Republican Union.

DEVERY, WILLIAM S. Former chief of police of New York City, died at Rockaway, Long Island, June 20th. He was born in 1854. He was for a long time a well known and picturesque figure in the police history of November and figured largely in the newspapers down to some 15 years before his death. He was constantly accused of irregularities and of trying a 'corrupt system of Tammany politics but he always contrived to escape conviction. His friends were numerous and his influence was extensive. He was particularly known for his striking remarks on politics and other subjects and for his effective retorts upon his enemies. Many of his sayings expressed in the slang of the day were circulated in the press. He acquired considerable wealth and during the latter part of his life was not active in politics.

DIAMONDS. See MINERALOGY.

DICKSON, JOSEPH BENJAMIN. Chairman of the Anthracite Committee of the Fuel Administration, died in New York, December 13. He graduated at Lafayette College 1883 and for many years was prominent in the coal business in New York.

DIÉMER, LOUIS J. French pianist and teacher, died in Paris, December 22. He was born in Paris, February 14 in 1843 and carried off the first prize of the Conservatory when only 13 years old. He became professor of the piano at the Conservatory in 1887 and he gave

piano recitals which attracted extraordinary interest at the Paris Exposition in 1889 after which he devoted himself to the older piano music and founded the Society of Old Instruments. He wrote concert pieces for the piano and some excellent chamber music; also published a collection of *Clavicinistes français*.

DIRIGIBLE. See **AÉRONAUTICS**.

DIPLOMATIC SERVICE. See **UNITED STATES**.

DISASTERS. See **FIRE PROTECTION**, and **SAFETY AT SEA**.

DISCIPLES OF CHRIST. Reports show that this denomination is now the fifth largest Protestant denomination in the United States. The church has been rapidly gaining in the last few years to figures that have been very gratifying to its followers. In 1919 there were in this denomination about 1,400,000 communicants, 11,200 churches, with 8500 ministers. Exact figures are unobtainable. The administrative work is carried on by an annual conference, while many State conferences take care of local work. The Disciples of Christ lead as to influence and size over all other denominations in Kentucky, Indiana, and Missouri, while in Illinois, Iowa, Kansas, Nebraska, and Texas, their following is very large. Now that the war is over the denomination has been able to expand its missionary work. Formerly the dearth of men available for missionary work had seriously impaired this branch of expansion. The church maintains eight missionary boards and 26 colleges. Principal among these colleges are Butler College, Drake University, and Spokane University. *The Christian Century* is the principal periodical published by the denomination, but there are also 14 others. The officers of the General Conference in 1919 were as follows: President, Rev. Edgar DeWitt Jones; and secretary, Rev. Robert Graham Frank.

DISTRICT OF COLUMBIA. See **MINIMUM WAGE**.

DITTENHOEFER, ABRAM JESSE. Lawyer, died in New York City, February 23. He was born at Charleston, S. C., Mar. 17, 1836, and graduated at Columbia College. He was admitted to the bar in 1864 and was one of the electors that chose Lincoln. He was chairman of the German Republican Central Committee for 12 terms and was prominent in many important corporation and commercial cases. He appeared on behalf of parties accused during the sugar scandals and was especially known as an authority on the law relating to the stage and drama. He defended the Metropolitan Opera Company in the *Parsifal* suit brought by Madame Wagner. He secured amendment to the United States copyright law for the protection of plays.

DMOWSKI, ROMAN. Polish representative at the Paris Peace Conference. He had been the unofficial representative of the Russian Poles in the early part of the war, and he afterwards helped to form the Polish National Committee of which he was appointed President. In politics he was known as a conservative and he had been a leader of the Russian Poles. He was a member of the first Duma and the author of a well-known work on the Polish question. As President of the Polish National Committee he obtained the recognition from the Allied governments of this institution.

DOBRUJA. The name of the southeastern

portion of Rumania, bounded by the Danube on the north and west, Bulgaria on the south, and the Black Sea on the east; status in 1919 pending under the Peace Treaty. Area, about 6000 square miles. Population in 1913, 380,430, including Bulgarians, Rumanians, Turks, Tartars, Greeks, Armenians, and Jews. Agriculture is the main occupation, as the soil is very fertile. The chief products are: cereals, tobacco, vines, beets, the mulberry, and fodder-yielding plants. The chief towns are Constantza, a seaport, and Tulcha, whose populations before the war were, respectively, 27,622 and 22,186. Prior to 1878 Dobruja belonged to Bulgaria, and was then transferred to Rumania. See **RUMANIA** and **WAR OF THE NATIONS**.

DOCKS AND HARBORS. The year 1919 saw considerable development in the provision of dry docks for the navy and merchant marine of the United States. Even before the war the necessity of docks of adequate length was apparent, and with the taking over for transport service of the former German liner *Vaterland*, renamed the *Leriatan*, it was apparent that no dry dock in the United States was large enough for that steamer. The Norfolk Navy Yard dry dock, 1011 feet long, 144 feet wide at the coping, and 40 feet deep, was opened in April, having cost \$4,500,000, and being sufficiently large to accommodate any ship that could pass through the Panama Canal. There was also under construction by the Commonwealth of Massachusetts a dry dock 1176 feet long and 149 feet wide at coping, located at the city of Boston. Under authority from Congress, the navy purchased this structure, completed it, and was able to provide accommodation for the largest naval and commercial ships.

During the year a large dock of the same size as the Norfolk dock was under construction at the Philadelphia navy yard, and plans had been prepared for a dock at the Charleston navy yard, on which construction was to proceed in earnest in 1920. This dock was important, as there was no dry dock south of Hatteras between Norfolk and Panama. In connection with this project the United States Congress directed the deepening of the channel at Charleston harbor, and at the same time appropriated \$4,000,000 to construct a dry dock practically the same as those at Norfolk, Boston and Philadelphia. At San Francisco the navy had made possible the construction by a private corporation of a big dock at Hunter's Point, San Francisco harbor, 1007 feet long, 153 feet wide and coping, 37½ feet deep. At Panama there was also a large drydock which was referred to in the **YEAR BOOK** for 1914.

PEARL HARBOR DRY DOCK. After being under construction for 10 years, the United States navy dry dock at Pearl Harbor, Hawaiian Islands, was completed and flooded on August 21st in the presence of the Secretary of the Navy. A small naval station had been located at this point, and Congress originally authorized construction of a graving dock 589 feet long, but the length was subsequently increased, in view of the greater size of ships and the development of the Panama Canal. Accordingly the dock was increased to be 1022 feet long, 138 feet wide at the coping, 39½ feet in effective depth, and work was started and was proceeding when a seismic upheaval occurred on Feb. 7, 1913, resulting in

the collapse of the structure. At this time, whether the project should be abandoned entirely in favor of a floating dock, or whether renewed efforts should be made to construct a graving dock, was thoroughly discussed, but a commission of civil engineers of the navy and from civil life, headed by Alfred Noble, developed a plan of construction which was duly approved, and which resulted in the structure being finished during the year. This dock was not only essential to naval operation in the Pacific, but was of the greatest advantage for the merchant and passenger ships in ever increasing numbers in the Pacific Ocean. This dock has been described in the YEAR BOOK for 1918.

Two dry docks in the Norfolk Navy Yard, adjacent to the machine shops built through the co-operation and financial assistance of the Shipping Board especially for merchant ships, were completed during the year, and on the 31st of October the Queen of the Belgians pressed the button flooding the docks and formally inaugurated them.

A shipbuilding dock novel in American practice was completed on Jan. 31, 1919, at Puget Sound Navy Yard, Washington. This floating dock was 836 feet long, 130 feet wide, and 18 feet deep, affording space for the construction of two destroyers at one time. After the building of the vessel is completed, the dock is flooded and the ship floods from the blocks instead of being launched. There are two 20-ton hammer-head cranes, one on each side. The entire project cost about \$600,000. This novel dry dock was dedicated on Dec. 16, 1919, and two new ammunition ships, U. S. S. *Pyro* and U. S. S. *Nitro*, built in the dock, were formally launched when water entered and floated them. Two target rafts were also launched at the same time.

NORFOLK NAVY YARD DRY DOCK. The 1000 foot navy yard dry dock at Portsmouth, Va., was completed and opened during the year 1919, all of the concrete being placed by Jan. 15 of that year. The excavation was started at the river end of the dry dock February, 1917, and six months later the first concrete was placed in one of the floor monoliths of the dock near the river end. The total excavation, which amounted to 625,000 yards, was completed early in 1918, and the concreting continued at the rate of 12,000 yards per month. The total concrete yardage was 185,000, and duplicate mixer units of large size worked continuously on the job. The cement was received in bulk in box cars at the dock, along which the sand and gravel lighters were unloaded, and from stock bins the materials were fed into mixers which discharged into 2 yard side gate cars, which were in turn carried on standard flat cars. In addition to the main dock on the down stream side, two 600 foot docks were built for the Shipping Board, and the same methods were used as for constructing the larger dock.

COMMONWEALTH DRY DOCK. The Commonwealth dry dock in South Boston, which had been under construction for three years by the State of Massachusetts, was formally taken over by the navy, and was put in commission on Dec. 22, 1919, in the presence of the Secretary of the Navy, and the battleship *Virginia* was the first vessel to use the new dock. This dock, as already mentioned, is 1176 feet long and 149 feet 9 inches wide. A ship of 1150 feet length, the beam of 115 feet, 45 feet draft could be ac-

commodated. The capacity of the dock is 55,000,000 gallons and the unwatering is accomplished by three electric pumps in about two hours. The cost to the State of Massachusetts was over \$3,000,000 and the dry dock was purchased by the U. S. government for \$4,100,000 on the understanding it should be turned over complete in all respects. The Navy Department planned to construct nearby two wet docks for fitting ships.

ATLANTIC HARBOR IMPROVEMENTS. The increased commerce due to the war at the various Atlantic ports caused a general consideration of greater channel depths and other improvements. At New York improvements in the East River made navigation through Hell Gate safer for vessels up to 22 feet draft, and a proposed project of the Engineer Department U. S. army was to open the channel to a main depth of 40 feet at this part of the river, and also remove Shell Reef in order to permit the better development of the Manhattan water front below Blackwell's Island. During the year 1918-19 the improvement of the Delaware River from Philadelphia to the sea had reached a point where ships drawing 34 feet were able to navigate the channel without difficulty, and further dredging and removal of rock from Philadelphia and harbor in the channel was proposed. The chief engineers reported that the improvement of the Delaware River had enabled the coastwise vessels to relieve greatly the congestion of the railway traffic and that the economic value of the improvement to commerce had been very great.

In general the same changes had been secured in the work done at Norfolk harbor, and deeper draft vessels and diminution in lighterage expenses had been secured, together with easier, safer and better navigation. The harbor improvement at Norfolk, together with the development of the rail facilities, had brought about lower freight rates between southern and eastern points. It was proposed as a further development to dredge an anchorage of about 64 acres, with depth of about 35 feet at mean low water, and to widen further the 40-foot channel.

Harbor improvement at Charleston, S. C., was also a work which had developed commerce, as this port in 1919 had deeper water than any other port on the Atlantic or Gulf south of Norfolk, and vessels drawing 32 feet of water could enter the harbor and dock on Cooper River.

NEW YORK HARBOR IMPROVEMENTS. The Commissioners of the Sinking Fund of the City of New York during 1919 authorized the construction of 14 new steamship piers on the east shore of Staten Island, located just inside the shore between Tompkinsville and Clifton. They were to be each 125 feet wide, and would vary in length from 1000 to 1124 feet and would be provided with one-story sheds, being of the New York standard type, that is, with sheds occupying practically all of the pier, so that freight handling was done from cargo masts. The total cost of the development was to be about \$15,000,000. Commissioner Hulbert, of the Department of Docks, during the year announced a Port Development plan which included the Staten Island development, the construction of the southerly five piers on the North River, reconstruction of the scattered piers throughout the city, construction of three piers in South Brooklyn and addition of one steamship pier to the present North River 48th Street group, intensive study of

the Jamaica Bay improvement, work for the straightening of the Harlem River, and study of the East River shores. With the exception of the Staten Island project no further authorization for this work had been made by the Sinking Fund Commission.

The Society of Terminal Engineers at New York during the year adopted resolutions asking the city officials to consider the redesigning of the proposed Staten Island piers so as to provide a more efficient system of freight than the cargo mass system which was the usual method at New York. The resolutions of this society referred to the method as "the same inefficient, expensive and slow manner as it has been handled in the Port of New York for the past 25 years," and further stated that inasmuch as these piers furnish direct connection between the docks and the transcontinental lines of the city, provision should be made for leading rails on the piers for direct interchange of freight between rail and ocean carriers, and that the installation of modern cargo handling devices and machinery be installed as necessary for securing for the Port of New York the advantage and prestige which its physical advantages should command.

DULUTH ORE-SHIPING DOCK. The ore-shipping dock of the Duluth, Missabe & Northern on Duluth-Superior Harbor, was placed in operation on May 1, 1919, and was the largest ore shipping dock in the world, having a length of 2438 feet, or sufficient to dock two of the world's largest ships, the *Bismarck* and *Leviathan*, end for end on either side. The dock is 84 feet above water, with electric light masts reaching to 120 feet. It replaced an old wooden ore dock which was wrecked and new piling driven, construction being begun in 1916. A total of 971,014 linear feet of timber piling was driven by July 28, 1919, and at the same time 174,230 linear feet of 12-inch, 43-pound, United States Steel sheet piling in 38 foot lengths was also driven. The entire dock foundation was surrounded by sheet steel piling, and after suitable caps and tie rods were placed, the entire foundation was pumped full of sand, which was leveled off at low water datum and served as a support for the concrete foundation slab in which the piles projected 9 inches. This reinforced concrete slab forming the foundation was 2438 feet long, 69 feet wide, and 6 feet deep, with openings along the centre line which were filled with sand. The reinforcement consisted of a layer of 1-inch plain round steel rods on 6-inch centres crosswise the dock and a layer of $\frac{3}{4}$ -inch rods on 12-inch centres lengthwise the dock, placed near the bottom of the slab. A total of 884,410 pounds of reinforcing steel and 171,320 pounds of tie rods were used in this part of the work. Recesses were left in the concrete slab to allow the placing of column anchor bolts and the pouring of column footing pedestals as one block. The superstructure provides for 384 ore pockets, 12 feet centre to centre, with 6540 cubic feet capacity each. Eight standard 50 ton ore cars can be dumped into each pocket without trimming, thus providing a storage capacity of 3072 cars, or 153,600 tons. The top of the dock is 76 feet 5 inches wide, and carries 4 tracks the entire length. There are 7 lines of wharves, and the elevation of the rails and wharves was so arranged as to leave no troublesome flangeway openings to require constant cleaning. The superstructure has a structural steel frame with concrete partition walls, pocket walls and side-

walk slabs. The fronts are of plate steel supported between pocket walls by I-beam wales and held against the walls by tie bolts, while the entire pocket structure is carried by two lines of steel columns spaced 12 feet apart, each column designed to carry 1,500,000 pounds. The entire dock and approaches can carry the heaviest locomotives of the Duluth, Missabe & Northern, a 304-ton Mallet type, and a 266-ton Santa Fe type, with 55,000 pounds axle loads. The partition walls and the loads from the pockets are carried to the columns by two plate girders forming an A-frame, and the pocket bottom slab rests on transverse I-beams that frame into these girders. The ore chutes are of the usual type, but heavier, and are raised and lowered by electric motors. The dock is approached by a two-track steel trestle 3087 feet long, beyond which is also a 400-foot elevated embankment carried between parallel concrete retaining walls. This ore dock is described in *Railway Age*, Aug. 22, 1919.

THE HOUSTON, TEXAS, HARBOR DEVELOPMENT. The inland city of Houston, Texas, since 1914 was connected, by a ship canal or channel 50 miles in length, with the Gulf of Mexico. This canal extends northwest from the harbor entrance at Galveston across Galveston Bay, and utilizes the San Jacinto and Buffalo rivers to reach a turning basin 1100 feet in diameter, which is some seven miles from the city and is connected by a light draft canal with a wharf at Main Street in the center of the city. At the turning basin some 3730 feet of water frontage are provided by wharves, which include 4 for general freight, 1 for cotton, and 1 for barge service. The first freight wharf and the cotton wharf were completed in 1915, but the others were built during the period of the war, and some portions of the terminal improvement were used by the War Department as an aviation supply depot. Various types of construction were employed on the wharves, and there was considerable trackage and freight handling equipment. The expenditure on this harbor since the first improvement was authorized in 1872 until June 30, 1918, aggregated \$6,725,000, of which \$5,346,000 was for new work and the balance for maintenance. It was proposed for the United States to enlarge the channel at a cost of \$3,850,000, of which \$1,365,000 would be paid from a bond issue of \$1,500,000 authorized in May, 1919, by the Harris County Navigation District. This port development by 1919 had resulted in creating a large industrial centre, and several oil refineries and cotton stores, a Portland cement plant and a chemical plant were located along the channel. During 1918 about 2,388,000 tons of merchandise valued at \$16,332,000 passed through the channel, there being over 15,000 trips of steamers, barges and other vessels.

ST. LOUIS MUNICIPAL DOCKS. During the year 1919, the city of St. Louis was spending some \$300,000 on a municipal dock which had been under construction for several years. The dock wall was being extended to a total length of 900 feet, the construction of pile fenders upstream and downstream and the concrete wall making a total length of about one-half mile. A warehouse with 60,000 square feet of floor space and the necessary railway tracks and roadway connection with the terminal were under construction. The work was being performed by city forces, and the mechanical equipment was being

purchased by the City Supply Commissioner on city specifications.

WILMINGTON, DEL., PORT IMPROVEMENT. The City Council of Wilmington, Del., authorized during the year the issue of bonds to the amount of \$3,000,000 for the development of the harbor of that city. The first improvement was to be the construction of a \$400,000 produce wharf for the local market, and the remainder was to be devoted to general port improvement. The work was to be in charge of the Board of Harbor Commissioners of Wilmington, Del., who had previously received a report from John Meigs, Consulting Engineer of Philadelphia, in reference to an elaborate port development.

COAL HANDLING TERMINAL AT NEW YORK. During the year the Central Railroad of New Jersey had under construction the largest coal handling terminal in New York Harbor. This project was to include a complete yard layout with a duplicate system of thawing sheds and a reinforced concrete pier with two McMyler car dumpers on the inshore end for the transfer of coal from road cars to barges and schooners, together with a screening pocket and conveyor, and on the offshore end facilities for coaling tugs, steam lighters, etc., consisting of 42 reinforced concrete silos for the storage of tug coal, with hoppers, conveyors and other incident apparatus. The project involved the placing of 800,000 cubic yards of embankment in the yard and 10,700 cubic yards of concrete on the pier, exclusive of the offshore end, upon which work had not been started by August, 1919. There was approximately 23 miles of track, and the total expenditure was to be in excess of \$3,000,000. The new facilities replaced two old gravity-type coal piers having a combined capacity of about 1,750,000 tons of tidewater shipments and tug coal per year. The new pier was estimated to have a capacity of 6,000,000 tons of transshipment coal and 1,000,000 tons of tug coal per annum. The new terminal is located upon a filled area on which were constructed embankments in order to provide the necessary grades for the yard tracks. The material was obtained both from dredging and from cinders from the locomotive terminal at Communipaw. The complete pier was to be 1584 feet in length, the inshore section being 970 feet in length, with a maximum width of 184 feet at the bulkhead line, narrowing to 66 feet at the sea end of the section. The offshore section, used for the coaling of tugs, on which the concrete silos were to be placed, is 614 feet in length and 66 feet in breadth. By the summer of 1919 the inshore section was practically completed, with one dumper in operation, and work was suspended on the offshore or tug coaling section until the completed portion of the pier included a reinforced concrete dock and concrete foundations for the car dumpers, built on 4400 creosoted pine piles averaging 70 feet in length. Track trestles over which the cars were delivered to the dumpers and returned to the empty yard were built of reinforced concrete. The terminal includes a large and substantial power house, two thawing houses each 320 feet long by 51 feet wide, with a capacity of 24 cars per house, so that the coal can be thawed by forcing air heated to a temperature of about 180° into contact with the bottom and sides of the car, so that a car can be thawed in from 2½ to 3 hours. There is also a complete yard system, with receiving

and classification yards, with gravity approach secured by a hump. This plant is described in the *Railway Age* for Aug. 29, 1919.

CRISTOBAL PIERS. The increased use of the Panama Canal brought about a demand for greater terminal facilities at both Atlantic and Pacific entrances, and in order to meet present and future demands, considerable pier construction was put under way. At the port of Cristobal three piers, Nos. 9, 8, and 7, were built in the harbor, and pier No. 6 was under construction in 1919. The three completed piers had foundations of concrete cylinders to rock, structural steel floor system incased in concrete for protection, and structural steel sheds, but the scarcity of steel during the war caused modifications in the design of pier No. 6 and a concrete design was substituted for long span steel superstructure, alternate tide arches and beams spanning longitudinally the pier footings with concrete cross beams and decks.

PARIS DEVELOPMENTS. In connection with developing the navigation facilities of the Seine and deepening the northern French canals to permit access to Paris by coal barges and larger tonnage, there was active discussion during the year towards providing basins and other accommodations which would make Paris an inland port in much the same fashion as had been done by the Germans in Strassburg and other Rhine towns. The demolition of the fortifications afforded ample sites for basins and walls, and the first of these for which preparation was being made was at Pantin, which was to be served by the Est Railway, and the Paris Chamber of Commerce urged the municipal council not only to expedite this work, but to arrange for the laying out of other basins, notably between Aubervilliers, La Chapelle-St. Denis, and at Bercy-Charenton. It was proposed to connect these basins with the canals, so that they would be in communication with the Seine and the northern canals, and furthermore equip them with large warehouses and modern plants.

DODECANESIA or the DODECANESE. (Greek for 12 islands.) A group of islands lying off the southwest coast of Asia Minor. The group consists of the southern Sporades, including the islands of Patmos, Lipsos, Cos, Leros, Calymnos, Rhodes, and others. The islands were occupied by the Italian forces during the war with Turkey, 1912-13. By the treaty of Lausanne, Italy agreed to restore the islands to Turkey, but the outbreak of the Balkan War prevented the execution of this agreement. The islands have since been claimed by Greece. The question of their disposition has not been settled, but was undertaken by the Peace Conference. See **WAR OF THE NATIONS**.

DOHERTY, CHARLES JOSEPH. Canadian representative at the Paris Peace Conference. He had been from 1891 to 1906 a judge of the Superior Court of Quebec, but devoted himself to politics and became a member of the House of Commons in 1908. In the Conservative cabinet of Sir Robert Borden, he held the portfolio of Minister of Justice, which office he was still holding during the Conference.

DOMINICA. See **LEEWARD ISLANDS**.

DOMINICAN REPUBLIC. A West Indian state occupying the larger and eastern part of the island of Haiti. Capital, Santo Domingo.

AREA AND POPULATION. The area of the country is estimated at 18,045 English square miles,

and has a population estimated (in 1913) at 708,000 inhabitants, but it is doubtful whether the population exceeds 600,000. The population is mainly composed of a mixed race of European, African, and Indian blood, but there are also some Creoles of Spanish descent, and many Turks and Syrians. The language of the people is Spanish, but the American patois is spoken along the frontier. Santo Domingo in 1918 had a population of 38,920, and Santiago de los Caballeros, of 52,266. San Pedro de Macoris, according to a less recent estimate had 20,000. Exact figures are difficult to obtain, and other estimates place these figures somewhat lower. Births, deaths, and marriages in 1918 were reported, respectively, 41,072, 10,071, and 3737. In 1918 the immigrants numbered 4988, a falling off from preceding years. A decree of April 4th prohibited until April 1, 1921, any attempt to induce laborers to leave the country for employment abroad by an offer of material compensation. Also forbade any vessels to undertake a voyage for the purpose of transporting laborers for employment in foreign countries.

EDUCATION. In 1918 it was reported that public instruction showed a greater development than in any previous year. The number of pupils in all the schools was 51,585 of whom 33,122 were in average daily attendance. The schools numbered 777 with 1209 teachers. The University of Santo Domingo had a faculty of 28 and a student body of 121. A plan was under consideration in 1919 for the establishment of a college of agriculture adjoining the experiment station in the city of Santo Domingo and a school of commerce was established in that city.

PRODUCTION. Agriculture is the chief occupation and the leading crops are sugar and cacao. No later figures for sugar production are available than those given in the preceding YEAR BOOK. As to cacao, 47,000,000 pounds were harvested in the Cibao during the year ending Aug. 15, 1919, which crop was worth to the growers over \$7,000,000. From this figure can be gained an idea of the importance of this crop in a community with an estimated population of not more than 100,000. For the 1919 tobacco crop, an unusually large area was prepared for cultivation, estimated from 25,000 to 30,000 acres, and on the general average yield it was expected to have a crop of 50,000,000 or 60,000,000 pounds, against the record yield of 35,000,000 pounds in 1918, but the drought in the early spring of 1919 caused a decrease in area planted, so that the revised estimates were for about 25,000,000 pounds. The other leading products of the Republic are coffee and honey.

COMMERCE. The foreign trade for 1918 amounted to \$42,108,496, of which \$19,736,152 were imports and \$22,372,344 exports. Compared with the year 1917, these figures show an increase in imports of \$2,336,088 and a decrease in exports of \$72,236, or a net increase of \$2,263,852.

RAILWAYS. The railroads are all situated in the northern part of the island, with the exception of privately-owned roads on certain sugar estates, which total about 255 miles. These roads are divided into two main lines: One, the Samaná-Santiago line, which belongs to an English company, runs from Sanchez to La Vega, a distance of 73 miles. This line has two branch lines which are under the same management, but different ownership, extending from

La Jina to San Francisco de Macoris (8½ miles) and from Las Cabullas to Moca (15 miles). Secondly, there is a government line, the Dominican Central Railway, which runs from Puerto Plata to Santiago and Moca, a distance of 60 miles. The total length of the line in 1917 was about 175 miles.

SHIPPING. In 1918 the shipping entered and cleared at ports of the Republic comprised 863 ships with a tonnage of 618,567 as against 1168 ships with a tonnage of 1,006,511 in the previous year. For the coastwise trade 365 foreign ships entered with a tonnage of 486,266 while the national vessels in the coastwise service numbered 7658.

FINANCE. The estimated revenue for 1919 was \$7,973,000 and the following expenditures were estimated: Interest and payment of the Dominican loan, interest and payment of the debt of 1918, appropriation for public instruction, expenses of the municipal government, public works and reserve fund, \$3,550,500; legislation, \$8280; executive department, \$28,360; judiciary department, \$558,630; interior administration and police, \$1,175,095; exterior relations, \$65,583; commerce and finance, \$487,304; justice and public instruction, \$462,500; agriculture and immigration, \$198,545; public works and communications, \$532,516. The figures of receipts and expenditures show a surplus of \$33,686.

HISTORY. The United States control dates from 1916 when the President was driven from power by the revolutionist Arias. On May 27th of that year the United States authorities issued their ultimatum demanding that the United States forces should be allowed peaceably to land. On June 1 the American marines landed and later a regiment was dispatched into the country to prevent a rising. There was desultory fighting and the regiment finally reached Santiago, where on Dec. 6, 1916, the American flag was raised. Since that time order has been maintained by American forces which consisted in 1919 of about 5000 marines. There was an American military Provost Marshal in the capital of each province who attended to the policing of the province. At the head of the administration was a Military Governor and Rear Admiral of the United States navy whose functions were like those performed some years before by General Wood in Cuba. According to reports in 1919, there were few active bandits left in the country, and it was safe to travel unarmed throughout every section. The administration continued mainly in the hands of the Dominicans who directed their own school system, their courts and their town governments. To the United States authorities was reserved the control of the treasury and customs and the appointment of the governors of the provinces. In 1919 there was as yet no president or congress, but native officials carried on the administration as they had done before, except that they were responsible to the United States government instead of to their own president. A feature of the American policy has been the creation of the Dominican National Guard, organized on the model of the United States Marine Corps which detailed from among its own officers the officers of the National Guard. In 1919 there were 14 companies of 80 men each, one company being stationed in the capital of each province. The men were enlisted exclusively from the native population. The new

force was reported to be well drilled and efficient. See EXPLORATION.

DOOLITTLE, CHARLES LEANDER. Astronomer, died at Philadelphia, Pa., March 3. He was born at Ontario, Ind., Nov. 12, 1843, and studied civil engineering at the University of Michigan. He served on the United States boundary survey from 1873 to 1875 when he became professor of mathematics and astronomy at Lehigh University holding that place until 1895. He was then appointed to the chair of astronomy in the University of Pennsylvania and he was also director of the Flower Astronomical Observatory (1895-1912). After 1912 he was made professor emeritus. Among his writings may be mentioned the following: *Practical Astronomy as Applied to Geodesy and Navigation*; *Results of Observation with Zenith Telescope*, Sayre Obs. (1876-95); *Results of Observation with Zenith Telescope*, Flower Obs. (1894-1911).

DOOR, ANTON. An Austrian pianist and famous teacher, died at Vienna, November 7. He was born in Vienna, June 20, 1833. Having established his reputation as a virtuoso in Germany, Italy, and Scandinavia, he succeeded Nikolai Rubinstein as professor at the Institute in Moscow. From 1869-1901 he taught with signal success at the Vienna Conservatory.

DRAINAGE. See RECLAMATION.

DRAMA, AMERICAN AND ENGLISH. In seasons of financial stringency, the commercial managers complain that, despite their love for art, they cannot afford to risk their capital in really earnest undertakings, because of the poor patronage of the theatre-going public. On the other hand, in seasons of financial prosperity, they forget all about their love for art and devote their energies to profiteering. Thus the drama loses either way. The year 1918 had been bad commercially, for the English-speaking theatre: but 1919, on the contrary, was a year of almost unprecedented prosperity, both in England and in the United States. The reason is obvious. The termination of hostilities on Nov. 11, 1918, resulted in a general feeling of relief and cheerfulness among the people of the victorious nations. After saving money for so long, they wished to spend it; and, after suffering for so long, they desired most of all to spend it for entertainment. Consequently, they kept the theatres crowded throughout 1919. But this period of prosperity, instead of being utilized by the managers as an opportunity for experimenting with the better things of the drama, was employed mainly to increase the commercial degradation of the theatre.

In New York, the managers, without advertising their intention, quietly raised the price of theatre-tickets from \$2 to \$3. For certain popular "shows" they charged \$5, and for one or two extravagantly advertised performances they even charged as much as \$10; but even this arrant exercise of profiteering could not keep the public away. Competition for the tenancy of theatres in New York became so keen that new productions were required to play to \$10,000 a week or else vacate the premises. Formerly the contract figure had stood at \$5000. Under this new condition, failure was decreed to any play which was not sufficiently commercial to attract the immediate patronage of the largest and least intelligent section of the theatre-going public.

In London, the developments of the year were

even more regrettable. The old order changed and yielded place to new. During the war several celebrated actor-managers had died,—such leaders of the English stage, for instance, as Sir Charles Wyndham, Sir George Alexander, and Sir Herbert Tree. Many prominent dramatists and actors had devoted their entire time to war work. While the lovers of the drama were not looking, a band of real-estate operators stepped in and bought up the leases of most of the London theatres. These dealers, imitating the example set by the American magnates, Mr. Erlanger and Mr. Shubert, succeeded in making the London stage more commercial than it had ever been before. It became difficult, if not impossible, for an important actor to secure a theatre for the production of a play by an important dramatist; and the best production of the year had to be housed in a derelict playhouse in Hammersmith. The West End theatres were given over almost entirely to musical "shows," frivolous farces, and popular but vulgar plays imported from America.

The leading British dramatists, Pinero, Jones, Barrie, Shaw, Galsworthy, and Barker, remained silent throughout the year, except that Shaw published a new volume, containing *Heartbreak House* and several short plays about the war, which did not increase his reputation and in some respects diminished his popularity. The few significant productions of the London season were subsequently reproduced in New York, and will be noted later in this article.

In the United States, the most important event of the year was the strike of the actors—a strike unique in history because it was not caused by any question of wages or of hours but was undertaken merely for a principle. Early in the summer, the real-estate magnates who control the American theatre, fearing the power that might accrue to the Actors' Equity Association if it should join the American Federation of Labor, organized a managers' union called the Producing Managers' Association. Subsequently the actors voted to ally themselves with organized labor. The managers' union then refused to recognize the corporate existence of the actors' union; and the Producing Managers' Association also refused to submit to arbitration two requests put forward by the Actors' Equity Association—first, that eight performances should constitute a working week and extra performances should be paid for pro rata, and, second, that after rehearsing four weeks without remuneration, actors should be paid half-salary for subsequent rehearsals. The organized actors called a strike on August 7th, and were soon joined by their allies, the organized stage-hands and musicians, who made no demands of their own. Within a few days nearly every theatre in New York was darkened, and many important theatres in other cities; and rehearsals of new plays were stopped entirely. The strike lasted for a month; and on September 6th the managers capitulated and granted much more to the striking actors than the Equity Association had originally asked. During the course of the strike, the entertainment committee of the organized actors, under the efficient direction of Lieut.-Col. Earle Boothe, put on a series of superlative "Equity Shows" which evoked great enthusiasm from the public. Perhaps the most important result of this month of internecine warfare in the theatre was the fact that the pub-



BOOTH TARKINGTON

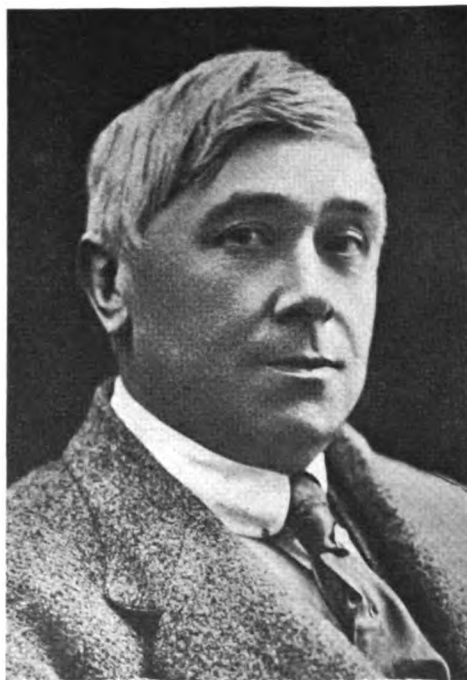


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JOHN DRINKWATER



LORD DUNSANY



MAURICE MAETERLINCK

PROMINENT DRAMATISTS DURING 1919

lic was reminded that, although the actor is essential to the drama and the playwright also is indispensable, there is no absolute need for the so-called "manager."

This point was tested earlier in the year by the Theatre Guild, a group of artists who incorporated themselves for the purpose of producing plays on a coöperative basis. They took over an abandoned theatre in New York—the Garrick—and proceeded to produce the sort of plays that the commercial managers are always afraid of. Their first production, Jacinto Benavente's *Bonds of Interest*, attained a *succès d'estime*. Their second production, *John Ferguson*, by St. John G. Ervine, was announced for only a single week; but it was so enormously successful that it ran in New York for over 20 weeks and subsequently continued its career in other cities. This was one of the greatest plays of the year, and one of the most successful. Later in the season the Theatre Guild produced John Masefield's Japanese tragedy, *The Faithful*, and a dramatization of William Dean Howells' celebrated novel, *The Rise of Silas Lapham*, by Lillian Sabine.

In the domain of the classic drama, Walter Hampden's production of *Hamlet* remained the greatest event of the year. Unaided by any of the commercial managers, this masterly young actor played the part more than 200 times, in many cities, and was everywhere recognized as the finest exponent of the rôle since the death of Edwin Booth. E. H. Sothern and Julia Marlowe, after several years of retirement, returned to the stage with *Twelfth Night*, *The Taming of the Shrew*, and *Hamlet*, and played to crowded houses everywhere.

Among the American managers, the medal of honor for 1919 should be bestowed on Arthur Hopkins, who followed his interesting production of Tolstoi's *The Living Corpse* with a still more vivid projection of *The Jest*,—translated from *La Cena delle Beffe* of the Italian poet, Sem Benelli, by Edward Sheldon. This play, well known in Europe, is a violent and thrilling melodrama written in gorgeous verse. The leading parts were played by John and Lionel Barrymore, and the scenery was designed by Robert Edmond Jones. In December, Mr. Hopkins presented for a series of special matinées an excellent production of Maxim Gorki's dreary but powerful tragedy, *Night Lodging*.

Next in honor among the American managers came William Harris, Jr., who invested some of the profits of a lurid and unworthy melodrama, *East is West*, in importing to New York the two most worthy plays of the London season. One of these was *The Lost Leader*, by Lennox Robinson, an interesting drama derived from the legend, still current in Ireland, that Charles Stewart Parnell is still alive. The other was a chronicle-play on the subject of *Abraham Lincoln* by the English poet, John Drinkwater. This piece, despite its unusual simplicity, was extraordinarily impressive. The title part was excellently played by a little-known actor named Frank McGlynn. The author visited the United States to superintend the production and to deliver a series of lectures.

Stuart Walker continued the excellent record of his Portmanteau Theatre by reviving *The Book of Job*, and by producing for the first time *The Tents of the Arabs* and *The Laughter of the Gods*, by Lord Dunsany. The latter was a new

play, regarded by the author as his best. In the autumn, Lord Dunsany visited the United States for the first time and delivered many lectures.

Another distinguished visitor was Maurice Maeterlinck, who came to New York in December to attend the world-première of the operatic version of *The Blue Bird*. Earlier in the year, his war-play, *A Burgomaster of Belgium*, had been acted in New York. Though quite outside the usual vein of Maeterlinck, this simple study of actual life was easily the most impressive of all the many plays inspired by the war.

The French drama was less popular in New York in 1919 than it had been during the war. Jacques Copeau completed the second season of his Théâtre du Vieux Colombier. He continued to produce great plays, week after week, and to present them admirably; but the support of the public was discouraging, and, in the spring, M. Copeau took his company back to Paris, accompanied by the good wishes of many cultured patrons. In the autumn, Robert Casadesus brought over a new company from France and inaugurated the Théâtre Parisien, an institution devoted to frivolous farces and operettas; and a Belgian actor, Carlo Liten, undertook a more ambitious project, called the Théâtre d'Art, which was introduced by an impressive production of *Le Cloître*, a tragedy by Emile Verhaeren. Yvette Guilbert made a beautiful production of an interesting old French miracle-play, *Guibour*, and acted for the first time in English in the title part; she continued her recitals in French; and, in the autumn, this great artist founded a School of the Theatre in New York. The only important French play which was produced in English in 1919 was *The Marquis of Priola*, by Henri Lavedan, which was admirably acted by Leo Ditrichstein.

The Jewish Art Theatre took possession of the abandoned Garden Theatre in New York and gave a series of excellent productions in the Yiddish language, under the direction of the celebrated German actor, Emanuel Reicher. Among the plays produced were *The Idle Inn*, by Peretz Hirshben, *Lonely Lives*, by Gerhardt Hauptmann, *The Dumb Messiah* by David Pinski, and a Danish play called *Samson and Delilah*. The *mise-en-scène* was admirable; and the acting of Jacob Ben-Ami was particularly notable.

Mention should be made of a worthy production in English of *Shakuntala*, a celebrated ancient Hindu drama by Kalidasa. This was set forth at the Greenwich Village Theatre by Frank Conroy and Harold Meltzer.

Except for John Drinkwater, the only English playwright who achieved a notable success on the American stage in 1919 was W. Somerset Maugham. *Too Many Husbands* (called in London *Home and Beauty*) was a delightfully witty farce; and *Cæsar's Wife* was a respectable, though not emphatically moving, contribution to the serious drama. Among the poor plays imported to New York from England were *Penny Wise*, *Three for Diana*, and *Carnival*.

Booth Tarkington may be singled out from the other American playwrights as the one who most materially increased his reputation in 1919. His comedy called *Clarence*, though slight in substance, may be regarded as the best American play of the year. It was deliciously whimsical, and presented a faithful picture of a representative American family. Mr. Tarkington was less

successful with another comedy, called *Up from Nowhere*, which was written in collaboration with Harry Leon Wilson. An operatic version of Mr. Tarkington's famous novelette and play, *Beaucaire*, with music by André Messager, was presented in London with great success by Gilbert Miller and subsequently imported to New York.

The war-play became obsolete in 1919; but several after-the-war plays were presented, which dealt with the social problems of the returned soldier. Of these the most interesting was *Civilian Clothes*, a comedy by Thompson Buchanan, in which an aristocratic heroine who had married an American captain in France was subsequently shocked when she saw him out of uniform, by the discovery that he was neither well born nor well bred. *The Five Million*, by Gray Bolton and Frank Mandel, treated the status of demobilized soldiers who found their former jobs occupied by women. *Buddies*, by George V. Hobart, revealed a pleasing picture of the A. E. F. in a rest-camp in Brittany; and *Forbidden*, by Dorothy Donnelly, dealt more seriously with the dramatic aspects of the American occupation of Coblenz. Anthony Paul Kelly, in *The Phantom Legion*, tried unsuccessfully to dramatize the spiritistic theory that dead soldiers continue to fight beside their living comrades.

The menace of Bolshevism was treated in a journalistic manner by Eugene Walter in *The Challenge*, an emphatic and fairly effective play. The same subject was very badly handled by Thomas Dixon in *The Red Dawn*.

Particular attention may now be devoted to those American plays of 1919 which revealed a certain amount of originality, and some positive degree of merit, of one kind or another. Augustus Thomas, the dean of American dramatists, contributed *Palmy Days*, a mellow tale of California in the mining days of '49, which was agreeably reminiscent of Bret Harte. Salisbury Field came forward with a really brilliant comedy, called *Wedding Bells*, in which the hero fell in love with his divorced wife on the eve of his contemplated second marriage. Zoe Akins offered a clever comedy, *Papa*, which failed, and a somewhat less able serious drama, *Déclassée*, which enjoyed a great success because of the excellent acting of Ethel Barrymore. Henry Miller and Blanche Bates appeared in *Molière*, an ambitious romantic drama by Philip Moeller; and, later in the season, these same artists produced an excellent comedy by James Forbes, *The Famous Mrs. Fair*, which dealt with the problem of the woman torn between her ambition for a public career and her duty to her family. Mrs. Fiske gave a delightful performance in a pleasing comedy by Laurence Eyre, *Miss Nelly of N'Orleans*. Tillie, by Helen R. Martin, was a study of local life among the Mennonites. *Adam and Eva*, by George Middleton and Guy Bolton, was one of the most workmanlike plays of the year, though it dealt with traditional materials. Rachel Crothers revealed once more her usual fidelity of observation in a comedy of boarding-house life called *39 East*. In *The Gold Diggers*, Avery Hopwood set forth a humorous depiction of the life of the chorus-girl. *Moonlight and Honeysuckle*, a somewhat artificial comedy by George Scarborough, was pleasantly played by Ruth Chatterton. Grace George gave a very fine performance in *She Would and She Did*, an ex-

tremely light comedy by a new author, Mark Reed. *I Love You*, by William Le Baron, was a fairly clever farce; but much more amusing was another farce, entitled *My Lady Friends*, by Emil Nyitray and Frank Mandel, in which Clifton Crawford gave an ingratiating performance. *His Honor, Abe Potash*, by Montague Glass and Jules Eckert Goodman, offered an excellent acting part for Barney Bernard; and a little known actor named Harry Beresford scored a remarkable success in *Boys Will be Boys*, which was dramatized by Charles O'Brien Kennedy from a series of stories by Irvin S. Cobb. *On the Hiring Line*, by Harriet Ford and Harvey J. O'Higgins, dealt amusingly with the servant problem. *Five O'Clock*, by Frank Bacon and Freeman Tilden, showed several elements of merit; but it was not nearly so successful as Mr. Bacon's previous play called *Lightnin'*, which ran throughout the entire year. *One Night in Rome*, an uneven play by J. Hartley Manners, disclosed Laurette Taylor to great advantage in the leading part. *Curiosity*, by H. Austin Adams, was an interesting study in the psychology of sex; and *Our Pleasant Sins*, by Thomas Broadhurst, deserves to be remembered as a serious attempt at serious drama.

There was an epidemic of bedroom farces in 1919. The following new plays all employed the traditional Palais Royal pattern, with different variations:—*Keep it to Yourself*, *Up in Mabel's Room*, *Please Get Married*, *A Sleepless Night*, *Nightie Night*, *An Exchange of Wives*, and *The Girl in the Limousine*. Of these the most skillful was *Nightie Night*, by Martha M. Stanley and Adelaide Matthews, in which Francis Byrne gave an excellent performance. In *Scandal*, Cosmo Hamilton essayed to lift the bedroom play to the level of serious drama; but his effort, though commercially successful, was artistically false.

There was also an epidemic in 1919 of melodramas that detailed a murder mystery; and the following plays—all interesting in one way or another—had similar plots:—*The Woman in Room 13*, by Max Marcin and Samuel Shipman; *At 9:45*, by Owen Davis; *The Crimson Alibi*, by George Broadhurst; *A Voice in the Dark*, by Ralph E. Dyar; *The Sign on the Door*, by Channing Pollock; and *For the Defense*, by Elmer L. Rice. Plays of this type were cleverly satirized by Thomas Springer in a burlesque melodrama entitled *Where's Your Wife? The Son-Daughter*, by George Scarborough, was a melodrama of the Sardou type, set in Chinatown for purposes of local color, and sumptuously produced by David Belasco.

The following American plays of 1919 were inferior in quality, and need be listed merely for purposes of record:—*Toby's Bow*, *Cappy Ricks*, *Hobohemia*, *The Net*, *The Fortune Teller*, *A Good Bad Woman*, *Dark Rosaleen*, *Those Who Walk in Darkness*, *A Regular Feller*, *Lusmore*, *Thunder*, *The Dancer*, *The Storm*, *a Young Man's Fancy*, *The Unknown Woman*, *Three's a Crowd*, and *The Whirlwind*.

In December, two huge and costly spectacles were exhibited in New York. *Aphrodite*, a pagan picture of the licentious life of ancient Alexandria, was produced by Comstock and Gest at the Century Theatre; and *The Wayfarer*, a modern passion play, was produced by the Interchurch World Movement in Madison Square Garden. Hundreds of collaborators were em-

ployed in each of these gigantic undertakings. Setting aside any question of subject-matter, and confining the judgment solely to matters of art, it must be said that the sacred spectacle was, in nearly all respects, more impressive than the profane.

DRUG ADDICTION. The New York County Medical Society held an important session on the subject of the federal and State Drug Laws last May. Legal authorities explained to the members the provisions of the laws and the court decisions rendered by the Supreme Court on test cases. These were concerned with the nature of "personal attendance," of "prescriptions," "professional practice," etc. There is a distinction between "personal" attendance and "medical" attendance, for in the latter more latitude is allowable. Personal attendance implies that the physician attends the patient before writing a prescription, presumably at his, the patient's, house. A prescription was defined as "written or spoken medical directions" or "remedies indicated." "Professional practice" had not yet been finally defined. It transpires incidentally that the Harrison Federal Law is only an internal revenue tax law. Beyond this the State is responsible. An important case was nearly lost by the government, for the Supreme Court decided, 5 to 4, that the vital point concerned was the raising of revenue. It was charged against the accused that the distribution of a large amount of narcotic to an addict by a medical man was not professional practice. The defense that the Harrison Law was unconstitutional had been upheld by a lower court. But in a somewhat similar case the Supreme Court decided against the government and in favor of the view that an order for morphine to an addict to quiet his nerves is not a prescription and the service does not fall under professional practice. Narcotic Commissioner Herrick claimed that the legitimate physician, acting in good faith, has nothing to fear from the State law. The main aim of the latter is complete control of the addict, even after his apparent cure, and here the medical profession has its chance to cooperate with the State. Dr. Copeland, the Health Commissioner of New York, stated that the medical profession will not treat the addict, so that the latter becomes a problem for the Health Department. During the winter of 1918-19 the number of addicts had notably increased and a total of 60,000 for the entire city was a conservative estimate. Nearly 500,000 pounds of opium reached this country in 1917 and the per capita amount for the entire country was 33 grains per annum—10-fold that of any other country. To catch the dishonest doctor and bootlegger both the federal authorities and local police would have to cooperate with the Health Department. Justice Collins likened the spread of the drug evil to an epidemic which necessitates drastic measures for its suppression. The business is largely in the hands of the underworld and in about half the cases of offenses against the drug law the offenders had been arrested on other complaints. During 1918, and in the early months of the present year, there had been a remarkable falling off in arrests of those with narcotics in their possession. According to Commissioner of Correction Hamilton about one-half of the addicts who come before his department have criminal records. Drugs led to crime much more frequently than crime to drugs.

The dishonest physician had no intention of curing any addict by reducing his quota of drug. Alcoholism is much less a menace, for it does not develop as a rule in the adolescent, its use can be discontinued by the young man even after several months of daily use, it can only be drunk and not injected or sniffed.

Dr. Dunnez of the U. S. Public Health Service stated that 20 of the States had reported an increase in the use of narcotics and there is some increase in dry territory where paregoric and proprietaries containing opium are used to some extent. Dr. Bishop justly protested against styling all addicts "liars" in advance. This is not only unjust but impolitic, for it interferes with the registration. Clergymen and judges do not care to register themselves as liars while in the discharge of professional functions.

DRUG RESEARCH. See CHEMISTRY, INDUSTRIAL.

DULUTH, MINN. See DOCKS AND HARBORS.

DUNKARDS or DUNKERS. See BRETHREN, CHURCH OF THE.

DUNLOP, SIR NATHANIEL. British ship-owner, died in London, November 15. He was formerly the chairman of the Allan Line Steamship Company. He was born in 1830 and educated in common schools. He became one of the managing directors of the Allan Line and rose to its chairmanship. He was the author of various pamphlets on commercial subjects and of magazine articles.

DUPUY, JEAN. French journalist and cabinet officer. He was born in the Gironde, France, Oct. 1, 1844. He was a member of the cabinet on three occasions and once president of the Council. During the war he was a member of the War Council which cooperated with the ministry. He held a seat in the Senate from Hautes Pyrénées. He was chiefly known however as a prominent figure in Parisian journalism, having been for many years a director of the *Petit Parisien*. He was active in organizing the press of Paris and was president of the syndicate of Paris newspapers. He took a leading part in the effort to maintain the rights of the press against the rigid censorship.

DUTCH EAST INDIES. A colonial possession of the Netherlands, comprising the Dutch possessions in Asia, situated between 6° N. and 11° S. latitude and between 95° and 141° E. longitude. Capital, Batavia.

AREA AND POPULATION. There are two main divisions: First, Java (16 residencies) and Madoera (1 residency); and secondly, the outposts, consisting of 17 provinces. The approximate area is 735,000 English square miles, with a total population in 1917 (official estimate) of 47,000,000. The population of the four principal towns of Java was: Batavia (1917) 231,463; Samarang (1916), 109,915; Soerabaya (1915), 157,202; and Soerakarta (1905), 118,378.

PRODUCTION. Area (end of 1917) under rice, 4,030,469 acres; maize, 1,303,680 acres; cassava, 1,021,824 acres; arachis, 162,117 acres; soya beans, 38,076 acres; other secondary crops, 580,085 acres; sugar-cane, 31,842 acres; tobacco, 10,992 acres; indigo, 5869 acres; and capsicum, 16,326 acres. Government coffee plantations in 1917 produced 1758 tons (Java), and from private estates (Java) was raised 71,682 tons. Tobacco in 1917 (Java) 25,930,000 kilograms, and (Sumatra) 20,550,000 kilograms, a total of

46,489,000 kilograms. Cinchona, in kilograms, was equal to a total of 8,009,148, in 1917. The production of tea in the country for 1917 was estimated at 43,271,000 kilograms, while in 1918 the exports of tea from Java alone totalled 27,735,892 kilograms. For the first four months of 1919 Java and Sumatra alone exported over 14,000,000 kilograms. Cacao (Java, 1917), 1,189,790 kilograms. The government tin mines of Banca yielded in 1917-18, 20,322 tons. This figure includes the output from all other tin mines as well, chiefly the private mines at Biliton and Riau. The yield of the principal coal mines in Java, Sumatra, and Borneo in 1917 was 816,578 tons. Petroleum and other mineral oils (1917), 1,747,014,000 kilograms. Gold, silver, diamonds, copper and manganese are mined.

COMMERCE. Government and private trade, merchandise and specie, are given below for 1916 and 1917 in guilders (12 guilders = £1).

Year	Merchandise	Government Specie	Total	IMPORTS			
				Merchandise	Private Specie	Total	Grand total
1916	16,519,407	400,000	16,919,407	404,723,739	24,608,794	429,332,713	446,252,120
1917	20,361,000	1,600,000	21,961,000	467,019,000	7,705,000	474,724,000	496,685,000

Year	Merchandise	Government Specie	Total	EXPORTS			
				Merchandise	Private Specie	Total	Grand total
1916	11,157,482	169,750	11,327,232	856,656,564	172,750	856,829,314	868,156,546
1917	1,670,000	149,000	1,819,000	785,110,000	6,300,000	791,410,000	793,229,000

The chief receiver of exports is the Netherlands. These consist chiefly of sugar, coffee, tea, indigo, tobacco, cinchona, copra, and tin. Rice is shipped in large quantities to China and Borneo. In 1917 there entered at the ports 7934 steamers and 6000 sailing vessels, a total of 3,140,024 tons and 342,517 tons respectively.

JAVA. The import and export trade of the island of Java may be shown by a table showing the increase of commerce of that island with the United States. Nearly 80 per cent of the total population of the Dutch East Indies live in Java. The following table shows the imports and exports with the United States, expressed in guilders (guilder = \$0.402):

Years	Imports from U. S.	Increase	P.C.	Exports to U. S.	Increase	P.C.
1914	6,200,000			10,900,000		
1915	11,500,000	5,300,000	85	26,600,000	15,700,000	144
1916	25,300,000	13,800,000	120	68,500,000	41,900,000	157
1917	47,400,000	22,100,000	87	141,800,000	73,300,000	107

Japanese trade with Java in 1917 showed an increase of about 300 per cent over the same period in 1915, the figures being, respectively, 37,000,000 yen (yen = \$0.498) and 9,000,000. The trade with Japan and the United States has replaced that with the German commercial interests.

FINANCE AND GOVERNMENT. The territory is under the sovereignty of the Netherlands, consisting partly of lands directly under control of the Dutch and those under the rule of native states. The revenue and expenditures, expressed in guilders, for 1919, were, respectively, 399,199,370 and 503,639,724, a deficit of 104,440,354 guilders. The governor-general, who is at the head of the administration, is assisted by a council of five members, whose functions are both legislative and advisory. The governor-general is nominated by the sovereign, as are the members of the council. In 1897 a council was created to con-

sider budget questions. In 1919, the governor-general was Dr. J. P. Count Van Limberg Stirum, appointed Oct. 28, 1915.

DUTCH GUIANA, or SURINAM. A colony of the Netherlands, lying on the northern coast of South America, between 2° and 6° N. latitude and 53° 50' and 58° 20' E. longitude. It is bounded on the north by the Atlantic Ocean, on the east by the River Marowijne, which divides it from French Guiana, on the west by the River Corantyn, dividing it from British Guiana, and on the south by inaccessible forests and savannas to the Tumuc-Humas Mountains. It has a total area of 46,060 square miles (English), and a population on Jan. 1, 1918, of 92,284, exclusive of the negroes and Indians in the forests. Capital, Paramaribo, 37,051 population. In 1917 there were 31 public schools, with 7508 pupils, and 44 private schools with 3318 pupils. There is also a government normal school. In 1917 the leading religious denominations were Moravian Brethren,

24,624; Roman Catholics, 19,698; Hindus, 20,850; Jews, 847; Mohammedans, 12,489; and Reformed and Lutherans 9773. Sugar production in 1917, 14,360,100 kilograms; cacao, 1,987,200 kilograms; bananas, 563,400 bunches; coffee, 1,546,000 kilograms; rice, 5,338,300 kilograms; maize, 1,608,300 kilograms; rum, 836,100 litres; and molasses, 658,000 litres. Gold yield in 1917 was 808,404 grams, of which was exported 701,343 grams, valued at 981,880 guilders. Total imports (1916), 5,911,326 guilders; total exports, 8,054,002 guilders; local revenue (1917), 3,193,000 guilders; subvention, 1,678,000 guilders. Governor, 1919, G. J. Staal.

DUTCH REFORMED CHURCH. See REFORMED CHURCH IN AMERICA.

DUTCH WEST INDIES. The term includes CURAÇAO and DUTCH GUIANA (q.v.).

DUTTON, SAMUEL TRAIN. American educator, died March 18. At the time of his death he was professor of educational administration in Teachers' College, Columbia University, an office which he had held for many years. He was born at Hillsboro, N. H., Oct. 16, 1844, and graduated at Yale, 1873. He held various educational and administrative positions in Connecticut where he was superintendent of schools in New Haven from 1882 to 1890. For the next 10 years he was superintendent of schools at Brookline, Mass., and then was professor of school administration in Teachers' College, 1900 to 1915, when he was made professor emeritus. Meanwhile he had been engaged in a wide range of educational activities, serving as a lecturer

on pedagogy at Harvard, the University of Chicago, and at Boston University and as exchange lecturer at the Scandinavian universities (1910). He also served as trustee and administrator of important educational foundations and was a member of the International Commission on the Balkan War (1913). He was associate editor of *Christian Work* and of the *World Court Magazine*. After his retirement in 1915 he devoted himself especially to the cause of international peace.

DUVENECK, FRANK. Painter, died at Cincinnati, Ohio, January 3. He was born at Covington, Ky., 1848, studied in Munich for more than 10 years and specialized in portrait and figure painting. After 1881 he lived almost continually at Florence, Italy. The Chicago Exposition medal was awarded to him in 1893, that of the National Academy in 1906, and the special Gold Medal of Honor of the Panama Exposition in 1915. At first his style was marked by great brilliancy but later became quiet in color. A large number of his paintings are in this country, including the "Turkish Page and Recumbent Figure" in the Pennsylvania Academy, and nine paintings in the Cincinnati Museum. Among his other paintings may be mentioned "A Circassian" (1875), a Portrait of Charles Dudley Warner (1877), and "The Professor" (1878). Duveneck also displayed marked ability as a sculptor.

DYNAMO-ELECTRIC MACHINERY. The year 1919 was not marked by the construction of any notably large generators, the 45,000 kw. turbounit of the Narragansett Electric Lighting Co. at Providence, R. I., put in operation during the previous year marking, for a time at least, the limit of size for such machines. Many of the generators installed during the year, however, were rated at from 25,000 to 35,000 kilowatts, so that the average size of those built and put in use was greater than ever before. Generators and motors were in good demand, but at times it was difficult to rely upon scheduled deliveries, owing to delays in the receipt of raw materials at the works of the large manufacturing companies. There was a steady replacement of steam engines by electric motors for operating mills and factories. Nor was this tendency confined to any one line of industry: rolling mills, cement plants, textile mills, and pumping stations being among those installing electric drive either directly applied, or through the medium of belts and short line shafts. Motors to the amount of 40,000 horse power capacity were installed during the year in iron and steel mills alone.

At Niagara Falls, three 32,500 kw. generators were in process of installation for the Niagara Falls Power Company, differing from others at that location in that they were placed far down in the wheel pit, for the purpose of avoiding a long vertical shaft, with its objectionable lateral vibration. Each hydraulic turbine constituting the prime mover was rated at 37,500 horse power and was designed to operate at 150 revolutions per minute. The electric generators were designed to deliver three-phase, 25-cycle alternating current at 12,000 volts. The total weight of the generator was 300 tons (272,108 kg.). This entire unit was constructed by the Allis-Chalmers Company and was put in operation on Dec. 27, 1919.

EADY, SIR CHARLES SWINFEN. British jur-

ist, died in London, November 15. He was born July 31, 1851; called to the bar in 1879; from 1891 to 1913 was judge of the chancery of the High Court of Justice. He was Lord Justice of Appeal till 1918 when he was made Master of the Rolls.

EAGAN, CHARLES PATRICK. Brigadier-General, died in New York City, February 1. He was born in Ireland, Jan. 16, 1841, and educated at San Francisco. He served during the Civil War and afterwards against the Indians. He became captain of commissary subsistence in 1874, major in 1892, commissary-general in 1898. He retired after 30 years of service.

EARTHQUAKES. The list of seismic disturbances for 1919 included several destructive shocks, but none that inflicted widespread disaster like some of the occurrences of previous years. A series of tremors centred near the city of San Salvador, Central America, partly destroyed that city and its environs on April 28th, the destructive waves spreading outward for a distance of 10 or 12 miles from the origin. The zone of disturbance nearly coincided with the area visited by the earthquake of June 17, 1917, when the damage was greatly augmented by a sympathetic outburst of the volcano Quetzaltepeque which in the more recent disturbance remained quiescent. The number of victims was placed at 40 killed and several hundreds injured. The island of Fuerteventura, one of the Canaries, experienced a shaking early in May that accounted for considerable damage and a few lives. Violent tremors were reported on June 29th throughout the provinces of Florence, Arezzo, and Siena in Central Italy. They seem to have been centred about the village of Vecchio, 15 miles northeast of Florence (the city) and on the western slope of the Apennines, which with the town of San Lorenzo was badly shaken. More or less damage to property was reported within the three provinces named and the loss of life was put at 200, besides several thousands injured. The shocks began about 6 A. M. and continued throughout the day with increasing violence, reaching their maximum intensity at 5 o'clock in the afternoon. The Italian government took prompt measures for the relief of the devastated district. A fairly strong but not destructive shock was felt in Rome, Italy, on October 21st, and two heavier shocks were reported in the Tiber Valley on November 7th. The vicinity of Cannes on the Riviera experienced slight tremors on November 28th. On the following day shocks occurred in the region south and southwest of Toulouse, France, near the foot of the Pyrenees. They were not productive of much damage. A more serious disturbance was reported to have visited western Asia Minor on November 27th, causing the destruction of seven villages and many lives; the zone of maximum disturbance was in the districts of Soma and Balikresi, north of Smyrna and 30 miles from the Mediterranean coast.

SEISMOLOGY. H. F. Reid and S. Taber described the Porto Rican earthquake of 1918 (*Bulletin Geol. Soc. Amer.*), which inflicted serious losses in lives and property. The shocks originated off the northwestern corner of the island, at a point where the sea bottom slopes off abruptly to great depths, and set up considerable sea waves of which the largest reached a height of 20 feet and swept over the low coastal area. The first tremors were the strongest and

were sensible over all the island and as far away as the western part of Haiti and the northern Lesser Antilles. Earthquakes have been infrequent in Porto Rico, only one other heavy disturbance (1867) having occurred since the time of Columbus. The shock probably came from crustal displacement along a submarine fault line, which is approximately marked out by the abrupt slope of the shore.

EAST AFRICA PROTECTORATE. A British dependency, extending from the former German East Africa to Abyssinia and Italian Somaliland, from the Umba to the Juba rivers, and inland as far as Uganda. For administration purposes, it is divided into seven provinces, in turn divided into districts and sub-districts, each province under a provisional commissioner. The provinces, with their respective capitals are as follows: Seyidie (Mombassa); Ukamba (Nairobi); Tanaland (Lamu); Jubaland (Kismayu); Kenya (Nieri); Naivasha (Naivasha); and Nyanza (Kisumu). It was proclaimed a territory on Nov. 19, 1890, and from March, 1891, to July, 1893, it was administered by the Imperial British East Africa Company. The East Africa Protectorate includes all the coast from the Umba to the Juba rivers. This was granted on a 50-year lease by the Sultan of Zanzibar. There is also a large tract in the interior, whose boundaries were defined by the Anglo-German conventions of 1886-90 and 1893, and the agreement with Italy in 1891. The administration is carried on under the colonial office, and has been under a governor and commander in chief, assisted by an executive and a legislative council since Nov. 9, 1906. The protectorate has an area of 246,822 square miles, and a population, estimated unofficially in 1919, of 2,807,000, including 5362 Europeans and 17,000 Asians. Swahilis and Arabs predominate on the coast. Races speaking Bantu languages and non-Bantu tribes such as the Masai, the Somali, and the Gallas, are further inland. The largest town is Mombassa, which had a population, unofficially estimated in 1919, of 300,000, of whom 130 are Europeans. It has a harbor situated on the eastern side of Mombassa Island, which is the terminus of the Uganda Railway. The two principal rivers in the north are the Tana and Juba which flow into the Indian Ocean; both navigable for 400 miles by steamers of shallow draught. The capital of the Protectorate is Nairobi, which had 14,000 inhabitants in 1919, of whom 800 were European and 3000 Indian. There were also 400 European farmers and 50,000 natives in the section adjacent to Nairobi. Agricultural products are essentially tropical, including rice, maize, various native grains, casaba, cocoanuts, etc. In 1919 there was considerable attention given to cotton growing on the banks of the Juba River. The production on an extended scale of sisal hemp and Ceara rubber is now being undertaken. In the highlands, the crops are similar to those of the temperate zone, consisting mainly of grains and European vegetables, with particular emphasis on wheat. In 1919, several new coffee plantations were established, adding considerable impetus to that industry. One of the principal industries of the country is the growing of black wattle. Dairying and ostrich farming are also profitable.

There is a forest area in the Protectorate which covers 3200 square miles, 138 square miles

of which is tropical forest, the remainder containing valuable timber trees. Mangroves, rubber trees, ebony, copal, and other trees grow in abundance near the coast, while the witu timber provides furniture woods. However, the valuable forested area lies in the highlands, to the west and north of Nairobi.

The extent of the mineral resources of the country have not yet been fully ascertained. Several large deposits of natron and diatomite had been discovered. Gold, in small quantities, had been found. Graphite and marble deposits have been located, and manganese had been discovered in the sandstones near the coast. The Uganda Railway has a length of 618 miles, owned by the state, and its cost amounted to nearly \$19,000,000 down to March 31, 1918. Communication between the ports of the Protectorate is maintained by small steamers, and the mail service between the United Kingdom and the Protectorate had been very irregular in 1919. Various commercial and financial figures for 1917-18 are as follows: Imports, £2,809,681; exports, £1,741,938; customs, £254,256; tonnage entered and cleared, 1,170,472. The chief imports during 1917-18 came from the United Kingdom, to the amount of £1,253,695; from the British possessions, £839,659; £188,773 from the United States, and £91,548 from Holland. The chief exports during 1917-18, including those also from Uganda and the Congo: Cotton, £711,770; hides and skins, £250,082; grain and oil seed, £39,452; fibres, £229,898; ivory, £44,867 coffee, £177,632; and copra, £18,904. Governor at the beginning of 1919, Maj.-Gen. E. Northey, C.B. See AGRICULTURAL EXPERIMENT STATIONS.

EAST ST. LOUIS FLOOD PROTECTION. See FLOOD PROTECTION.

EASTON, PA. See SEWERAGE.

EBERT, FRITZ. President of the German Republic. He succeeded Prince Max of Baden as Chancellor of the Empire on Nov. 9, 1918. He was of humble origin and during his youth worked as a tailor and bourrellier. Later he succeeded in purchasing a printing establishment and wrote for the press of Bremen. He early became prominent among the Socialists and in 1908 was elected to the Reichstag where he took every occasion to discuss the military budget and to press the claims of Socialism. At the beginning of 1916 he was elected president of the Socialist group in the Reichstag. He defended vigorously the submarine campaign. In 1917 he presided at the Socialist Congress at Wurzburg, where he was appointed leader of the Socialist Majority party. He was spokesman of this group, in its vacillating policy during the war when it was sometimes fiercely aggressive, and at others disposed to conciliation, according to the ups and downs of the German armies. It was this element which voted the famous July resolution on July 19, 1917. In September, 1918, it was he who appealed for peace to the Reichstag, and later he issued a proclamation demanding an armistice. Previous to this, even in July, he had foreseen the coming of defeat and demanded that the war should cease. It was this foresight which made him prominent when the question of a successor to Prince Max arose in November. Prince Max himself designated him as his successor. The office of chancellor was suppressed a few days later, and when the new government was constituted he became the most prominent member in it, having more influence

with the public than any of his colleagues who at that time were Scheidemann, Haase, Barth, Landsberg, and Dittman. The Independents turned against him and the Spartacus movement threatened to turn Berlin into a second Moscow. After some hesitation Ebert resorted to force and crushed the outbreak in the streets of Berlin. He carried out the measure for the elections which resulted in the National Assembly, and in March, 1919, he was proclaimed by that Assembly President of the German state. He had developed his programme on February 6th when the Assembly opened. In brief it was as follows: The reconstitution of Germany; the preservation so far as possible of its territorial integrity; the welcoming of Austria as a part of the German Republic, provided she would consent to it; the republic to be federative in name, but more strongly centralized than the Empire.

ECLIPSE. See ASTRONOMY.

ECOLOGY. See BOTANY.

ECONOMIC ASSOCIATION, AMERICAN. See POLITICAL ECONOMY.

ECUADOR. A republic of South America on the Pacific Coast between Colombia on the north and Peru on the south. Capital, Quito.

AREA AND POPULATION. Area estimated at 118,000 square miles, but the figures are doubtful on account of the uncertainty as to the boundary. The boundary dispute with Peru was still open and although the dispute with Colombia was settled in 1917 the adjustments under the treaty had not been made known. Including Galapagos which is an archipelago administered by a territorial governor, the area was estimated at 118,000 to 119,000 square miles. The population in 1903 was 1,323,900; in 1915, estimated, 2,000,000.

EDUCATION. Since November, 1912, radical changes have been made in the system of public

instruction. New courses of study in the primary schools were introduced in March, 1916, and already changes had been made in the system of the normal schools in 1915. In 1916 the higher education was reorganized and in 1918 new features were introduced in high school courses. The courses were divided as in the other Latin-American countries into primary, secondary, and high. Primary instruction is free and obligatory on all children beginning with the sixth year. The elementary and grammar schools are for children between the ages of six and 12, and the high schools for children who have passed through these lower grades, which are compulsory. In 1919 the schools in operation in the Republic were reported as follows: Mixed schools, 103; primary schools, 241; grammar schools, 122; high schools, 16; fiscal schools, 385; municipal schools, 57; private schools, 40; total enrollment about 48,505; and regular attendance, about 41,090. Secondary or high school instruction is given in the national colleges, entrance to which requires the pupil to have attained the age of 12 years and completed all the obligatory courses of primary instruction. There is at least one national college in each of the provinces with the exception of Esmeraldas. The number of students entered in the respective colleges in 1917 was reported as follows: Bolívar de Tulcán, 19; Teodoro Gómez de la Torre, 59; Mejía, 292; Vicente León, 67; Bolívar de Ambato, 65; Maldonado, 100; Pedro Carbó, 70; Juan B. Vazquez, 76; Benigno Malo, 240; Bernardo de Valdivieso, 105; Nueve de Octubre, 53; Espejo, 50; Vicente Rocafuerte, 299; and Olmedo, 44.

COMMERCE. The exports to the United States invoiced at the American Consulate-General and Consular Agencies in 1917 and 1918 are as follows:

Articles FROM GUAYAQUIL	1917		1918	
	Quantity	Value	Quantity	Value
Achiote pounds..	34,600	\$3,247	20,000	\$1,600
Anatto do..	.....	.....	.....	.....
Bark:				
Cinchona do..	22,092	1,590	14,743	2,103
Condurango do..	13,445	718	46,183	4,289
Cabuya (cabulla) do..	5,976	367	58,739	4,150
Cacao do..	73,733,496	7,795,576	73,088,271	7,616,248
Coffee do..	26,200	2,537	623,486	102,670
Cotton do..	.....	.....	140,254	53,370
Cylinders, empty number..	394	2,322	103	923
Drums, empty drums..	451	3,249	124	462
Gold:				
Base bullion troy ounces..	9,897	49,211	8,401	52,225
Mill bullion do..	33,668	466,219	34,788	477,998
Cyanide precipitates do..	402,045	243,664	204,773	154,716
Mill sulphides do..	.....	.....	15,089	6,612
Hats, straw dozen..	36,497	395,247	29,231	377,756
Hides, cattle pounds..	2,385,970	564,904	753,641	178,758
Horns do..	34,956	1,825	.....	.....
Ivory nuts do..	324,752	11,688	2,623,829	95,981
Kayak do..	115,530	18,630	.....	.....
Leather, sole do..	287,108	57,217	101,114	23,120
Mangle, extract of do..	147,499	5,370	15,340	430
Ore, manganese tons..	.....	.....	147	7,613
Rubber pounds..	270,522	96,804	54,901	16,080
Skins:				
Alligator do..	108,650	14,410	13,250	1,644
Calf, goat, sheep do..	108,942	26,514	76,206	18,961
Sheepskins, dressed do..	1,503	739	.....	.....
Wool do..	2,025,623	335,348	1,683,888	388,814
Zinc do..	13,238	1,437	.....	.....
All other articles do..	.....	4,798	.....	2,146
Total . . . . .	.....	\$10,103,666	.....	\$9,588,669

Articles FROM ESMERALDAS	1917		1918	
	Quantity	Value	Quantity	Value
Cacao	25,199	\$2,876	.....	.....
Copper (old)	5,388	1,565	2,906	695
Gum .....	.....	.....	1,050	194
Hides	40,964	7,540	1,704	304
Ivory nuts	15,367,517	437,134	11,179,718	406,338
Rubber	68,220	29,095	28,109	7,929
Total .....	.....	\$478,210	.....	\$415,460
FROM BAHIA DE CARAQUEZ				
Beeswax	100	\$29	4,293,948	.....
Cacao	5,169,834	481,800	.....	498,978
Coconut	500	17	.....	.....
Coffee	170	11	.....	.....
Deerskins	4,424	1,051	1,974	340
Hides	290,276	69,157	167,969	38,999
Ivory nuts	3,822,132	91,151	3,428,907	86,099
Rubber	471,189	181,058	79,200	26,856
Total .....	.....	\$823,774	.....	\$645,667

Export trade as registered at the Port of Guayaquil in 1918 showed the United States to be far in the lead with 78 per cent of the total amount exported. Chile received 7.8 per cent; the United Kingdom 5.8 per cent and then came Spain and Peru each with considerably less.

SHIPPING AND RAILWAYS. Almost all vessels call at the port of Guayaquil. The nationality and shipping statistics for 1917 and 1918 are supplied by the United States Bureau of Domestic and Foreign Commerce as follows:

Nationality	Entered		1917		Entered		1918	
	No.	Tonnage	No.	Tonnage	No.	Tonnage	No.	Tonnage
Chilean .....	..	.....	..	.....	1	18	..	.....
Danish .....	..	.....	..	.....	1	998	1	998
Ecuadorian	32	2,458	34	2,785	25	647	23	866
Japanese .....	..	.....	..	.....	2	5,284	2	5,284
Mexican	2	3,116	2	3,116	..	.....	..	.....
Norwegian	14	20,627	14	20,627	2	3,265	2	3,265
Peruvian	42	83,316	42	83,316	36	55,416	36	55,416
British	89	124,223	89	124,223	84	117,341	80	102,719
American	15	12,898	15	12,898	9	12,989	9	12,989
Total	194	246,638	196	246,915	160	195,958	153	181,587

Steamers and sailing vessels entered with 40,234 tons of imports and cleared with 40,531 tons of exports. The imports of the previous years aggregated 62,321 tons, the exports 45,792 tons, which was nearly 36 per cent more imports and nearly 11.5 per cent more exports than were shipped in 1918. The considerable decrease in steamer tonnage in 1917 over that of the previous year continued during 1918, and showed a difference of 26 per cent. It is evident that the tonnage used in carrying the freight to and from Guayaquil is greatly in excess of that actually required.

There is a railway from Duran to Quito with a total length in 1917 of 365 miles. Local authorities have undertaken the development of lines for local trade.

FINANCE. Gold is the standard and the monetary unit is the sucre, of which the value is \$0.48865. The revenue and expenditure from 1916 to 1919 inclusive, the last named year being estimated, are as follows:

	1916	1917 and 1918	1919
Expenditure.....	\$1,796,496	\$1,829,733	\$1,685,980
Revenue.....	1,828,865	1,660,537	1,685,980

On Jan. 1, 1918, the foreign debt was £3,400,160 and the internal debt was £1,892,350. In 1918 there was a remarkable fluctuation in the

rate of bank exchange. The rate was 2.43 sucres to the dollar during the first nine months but before the close of the year it rose as high as 3.3. This led to the appointment of an advisory council to the minister of finance who was empowered to fix the bank rate of exchange. This he did, placing it at 2.43.

GOVERNMENT. Executive power is vested in a President elected directly by the people; the legislative power in a Congress consisting of two houses, of which the first comprises 32 Senators,

two for each province chosen for four years, and the second 48 Deputies elected for two years. The constitution does not provide for the election of a Vice-President upon the death of the President or other cause of vacancy, but the office is filled first by the president of the Senate or failing him, by the president of the Chamber of Deputies. At the beginning of 1919 the President was Dr. Alfredo Baquerizo Moreno who assumed office on Sep. 1, 1916.

EDISON MEDAL. The Board of Directors of the American Institute of Electrical Engineers awarded the Edison Medal for 1919 to W. L. R. Emmet "for inventions and developments of electrical apparatus and prime movers." This was the ninth successive award of this medal.

EDMUNDS, GEORGE FRANKLIN. Former United States Senator, died at Pasadena, Cal., Feb. 27. He was for many years one of the most prominent and highly respected leaders of the Republican party. He was born at Richmond, Vt., Feb. 1, 1828; was educated in the common schools and with private tutors; studied law, and began practice in 1849. From 1854 to 1862 he was a member of the Vermont legislature and from 1862 to 1891 was United States Senator. He was on the Electoral Commission in 1877. One of the many measures for which he is known is the Edmunds Act of Mar. 22, 1882, for the suppression of polygamy in Utah and

the disfranchisement of those who practiced it. He was the author also of the anti-trust law of 1890. In 1880 he received 34 votes for the presidential nomination in the National Republican Convention. During the presidency of General Arthur he was president pro tem of the Senate. For several years he was the leader on the Republican side. In 1884 he received 93 votes for the Presidential nomination. In 1897 he was made chairman of the Monetary Commission, appointed by the Indianapolis Monetary Conference. He was regarded as one of the ablest constitutional lawyers of the time.

EDUCATION. See sections so entitled in articles on foreign countries and States of the United States; also AGRICULTURAL EDUCATION, EDUCATION IN THE UNITED STATES, LITERATURE, ENGLISH AND AMERICAN, and UNIVERSITIES AND COLLEGES.

EDUCATION IN THE UNITED STATES.

STATISTICS OF ATTENDANCE IN ELEMENTARY AND SECONDARY SCHOOLS.

AMERICANIZATION. Great importance is attached to the fact that almost without exception the teachers in the public schools of the United States have been beyond the suspicion of disloyalty. It may be assumed, therefore, that the schools have been true to their mission and that those of our youth who are in these institutions have been impressed with the ideals and aims of our Democracy. Throughout the year the problem of reaching those who were beyond the influence of the school in order that they may be taught has received increasing attention. The legislatures in a considerable number of States considered the matter and enacted laws that will serve to bring all foreign language speaking people under the instruction of competent teachers. Congress has had before it several measures that look toward the same end. Following its investigation of conditions in the steel strike district, the Senate Committee on Education and Labor presented a bill which is known as "The Kenyon Bill." In supporting the bill the committee called attention to the fact that there are over 8,000,000 people in this country over 10 years of age who can neither read, write, nor speak the English language, and that at least 55 per cent of this number are native born. Such persons it is urged do not understand the purposes of America. They are, therefore, an easy prey to those who desire to overthrow this government.

The teaching of the American language would be a long step toward ridding the country of these undesirable characters and bringing the light of intelligence to those who are at present deprived of the chance to know and appreciate the opportunities that this country has to offer to them. The bill provides that the Secretary of the Interior, through the Bureau of Education, may cooperate with the several States in the education of illiterates and other persons unable to understand, speak, read or write the English language. There is to be an appropriation of \$5,000,000 for the first year and for each year thereafter until the year beginning July 1, 1923, when the sum of \$12,500,000 and certain additional amounts are to be available. The bill stipulates that the State must appropriate of its own funds an amount equal to that allotted to the State by the United States. No Federal funds can be granted to any

State until the State requires all residents, who are citizens of the United States, 16 years of age or over and under 21 years of age, and all residents of more than six months who are aliens 16 years of age or over and under 45 years of age, who are illiterates or unable to understand, speak, read or write the English language, to attend classes of instruction for not less than 200 hours per annum until they have completed a specified course approved by the Secretary of the Interior.

The money appropriated by the United States cannot be used for any purpose other than the payment of salaries of teachers, supervisors or directors of education or for the preparation of teachers, supervisors and directors of education. The funds are to be appropriated to the States in proportion to the number of persons who are illiterates or who are unable to speak, read, or write the English language, 16 years of age and over. The provisions of this bill are so similar to those that have been constantly urged upon the Congress that it seems probable that some measure of this nature will eventually become a law. Meanwhile many of the States have given the use of the English language in school for the purposes of instruction and administration very careful consideration. Among the States during the past two years that have enacted laws requiring that all instruction shall be in the English language are the following: Delaware, Idaho, Illinois, Indiana, Iowa, Louisiana, Maine, Minnesota, New Hampshire, New York, North Dakota, Oklahoma, Oregon, South Dakota, West Virginia and Wisconsin. The law enacted by the legislature of Illinois departs from the usual form and presents the following statement: "Because the English language is the common as well as the official language of our country, and because it is essential to good citizenship that each citizen shall have or speedily acquire, as his natural tongue, the language in which the laws of the land, the decrees of the courts, and the proclamations and pronouncements of its officials are made, and shall easily and naturally think in the language in which the obligations of his citizenship are defined, the instruction in the elementary branches of education in all schools in Illinois shall be in the English language."

REHABILITATION OF DISABLED SOLDIERS. The vocational rehabilitation act as amended July 11, 1919, provided that "every person enlisted, enrolled, drafted, inducted, or appointed in the military or naval forces of the United States, including members of training camps authorized by law, who, since Apr. 7, 1917, has resigned or has been discharged or furloughed therefrom under honorable conditions, having a disability incurred, increased, or aggravated while a member of such forces, or later developing a disability traceable in the opinion of the board to service with such forces, and, who, in the opinion of the Federal Board for Vocational Education, is in need of vocational rehabilitation to overcome the handicap of such disability, shall be furnished by the said board, where vocational rehabilitation is feasible, such course of vocational rehabilitation as the board shall prescribe and provide."

It has also provided "that the courses of vocational rehabilitation provided for under the act shall, as far as practicable and under such conditions as the board may prescribe, be made

available without cost for instruction for the benefit of any person who is disabled under circumstances entitling him, after discharge from the military or naval forces of the United States, to compensation under Article III of the said act and who is not included in section 2 thereof."

In announcing this method of procedure the Federal Board of Vocational Education stated that "the discharged soldier, sailor, or marine who applies for reeducation under the vocational rehabilitation law is treated throughout by the Federal Board for Vocational Education as a civilian needing advice and assistance; his choice of an occupation is approved, unless after careful investigation, sound opinion shows it to be in the end not advisable; he is trained to meet the needs of the occupation he has elected; he is urged to make the most of his opportunity to overcome his handicap by taking the best available instruction; he is assisted in securing desirable permanent employment when his training course is completed; and he is followed up after he goes to work until it is assured that his employment is satisfactory."

In order to be eligible for vocational training the disabled soldier, sailor or marine must meet the following conditions: "(a) He must have been separated from the military or naval forces of the United States under honorable conditions since Apr. 7, 1917. (b) He must have a disability that was incurred, increased, or aggravated while a member of such forces, or that is traceable, in the opinion of the board, to service with such forces. (c) His disability must, in the opinion of the Federal Board, be of such a nature as to cause him to be in need of vocational rehabilitation to overcome the handicap of such disability. (d) His physical and mental condition must be such as to make vocational rehabilitation feasible."

During the period of training men receive monthly payments for their maintenance. The amount of these payments vary from \$80 for a single man without dependents to \$150 for a man with wife and six or more children.

On Nov. 22, 1919, 18,239 men were receiving vocational training. These were divided into five groups. Group I consisted of those who were receiving pre-vocational training. In this group there were 2923. Group II consisted of those who were receiving instruction in trades and industries. This was the largest group and numbered 5079. The mechanical trades were most popular and of the 2128 enrolled in this department, 651 were preparing to become auto mechanics. The third group consisted of those preparing for business and commercial training and numbered 4839. The fourth group was composed of those receiving training in agriculture. Of these there were 2805 of whom 2131 were preparing for general agriculture. The fifth group is composed of those preparing for the professions. There were 2593 such students. Nine hundred and fifty-seven of these were preparing for some form of engineering, 598 were following medical subjects, 352 studying law, while 80 were following general college courses.

It has been the policy of the Federal Board of Vocational Education to use established institutions. The board is coöperating with 546 State and local institutions and 198 factories, shops and offices. In addition there are co-operative arrangements with government departments, the American Red Cross and American

Federation of Labor, the United States Chamber of Commerce and other like organizations.

TEACHERS. The most important question relating to public education is concerned with the supply and character of the teachers. During the past several years the supply of teachers has been greatly decreased. The best available information indicates that in September, 1919, there were no less than 39,000 vacancies and more than 65,000 teachers who were below standard. At the same time the attendance at normal and teacher training schools was fully 20 per cent below that of 1916. It appears that 143,000 gave up teaching during the past year. This is a loss of about 22 per cent of the teaching population. This matter has now reached such proportions that it has become a great National problem. There is, however, no National policy respecting it and the situation grows worse and worse.

As might be expected there is a disturbing amount of unrest and dissatisfaction among the teaching body. Although this manifests itself most clearly in the numbers that are leaving the profession, it is also manifest in the attitude of those who remain. It seems evident that the first step in the solution of the problem requires that teachers receive a considerable increase in their salaries. Unless such increases are supplied it is reasonably certain that the country will suffer a continued loss of teachers and that promising young persons will fail to enter the teacher training institutions. At present no reliable data are available in reference to teachers' salaries. Some conception of what the situation must be can be gained from the fact that one of the most progressive Eastern States is endeavoring to secure a salary schedule in which \$1200 will be the minimum. In still another State a minimum of \$800 was deemed too high. Every investigation that has been reported shows that the salaries of teachers, even those employed in the high schools, is on the average less than the union scale of wages for most of the occupations.

Except in one or two places there has been no strike of teachers and there are abundant reasons to believe that no further strikes will occur, but in every part of the country teachers are organizing for the purpose of pressing their claims for higher salaries and also for the purpose of securing proper recognition in the professional management of the schools.

AMERICAN FEDERATION OF TEACHERS. In approximately 100 cities the local teachers' associations have joined the American Federation of Teachers, which is affiliated with the American Federation of Labor. One of the high officers of the American Federation of Teachers states, "We are a national, professional, organization of classroom teachers, running our own affairs without any interference of any kind. In common with the National Federation of Federal Employees, Postoffice Employees, Letter Carriers, etc., we do not use the method of the strike, and it is impossible for any local or state central labor body or for the American Federation of Labor itself to urge that method upon us."

Sentiment has been divided in reference to the most desirable form of teachers' union. Many of the leaders in education insist that any organization of teachers must be professional in nature and independent. They urge

that this position is taken, not because they fail to respect the American Federation of Labor, but because they believe it would be a mistake, both for the teachers and for the Federation of Labor.

Dean James E. Russell in a speech before the students of the summer school of Columbia University enumerated as the principles that should govern teachers' organizations, the five points: "I. Every teacher in the organization must be 100 per cent American. II. The work of the teacher must be professional in character and honestly performed. III. The teacher, as a faithful servant, is worthy of his hire. IV. The organization must be honest and straightforward in its dealings with the public. V. The organization should cooperate with every other group of citizens for the promotion of the public good, but should avoid entangling alliances with any one."

TEACHERS' COUNCIL. The past year has brought increased attention to the importance of the teachers participation in many of the professional matters relating to the schools. Prior to 1919, seven or eight of the larger cities in the United States recognized the advice of teachers in the administration of the schools. During 1919 the Board of Education of Washington, D. C., and of several other cities adopted resolutions authorizing the formation of teachers' councils. This action in Washington was the result of an investigation conducted by the teachers of that city which ended in a request on the part of the teachers. This request defines "the teachers' council as an advisory body of teachers called to confer with the superintendent. It enumerates as among the questions to be discussed by the teachers' council changes in courses of study and textbooks, sanitation of buildings, discipline of pupils, salary increases and schedules, and substitute service; and it suggests that for discussion of subjects like these the teacher members of a council bring first-hand knowledge and experience that are invaluable."

The Commission on the Emergency in Education appointed by the National Education Association has urged upon school officials the importance of participation of classroom teachers in determining educational policies. The statement of this committee is having marked influence throughout the country. The following is substantiating their statement: "In the administration of the public schools we recognize boards of education as the representatives of the people. Theirs is the responsibility to adopt the policies which will make for the development of public education and through public education for the development of our democratic society. We recognize the superintendent of schools as the executive officer chosen by the board of education to carry out its policies and to recommend to these representatives of the people the kind of action that will make for the realization of our educational ideals. At the same time, we know that teachers working in the classrooms of our public schools have contributed ideas that have had a determining influence upon educational progress. Through teachers' councils, through committees, through voluntary associations, and through individual recommendations, teachers have concerned themselves with the larger problems of educational administration to the great benefit of the schools.

"Boards of education and administrative officers in those communities that have made the greatest progress, have recognized this principle. In many places, by rule of the board or by invitation of the superintendent, teachers' organizations have been requested to make recommendations affecting courses of study, the adoption of textbooks, types of building and equipment, the organization of special classes and special kinds of schools, and the formulation of budgets.

"We believe that participation by teachers is indispensable to the best development of the public schools. We believe that such participation should be the right and responsibility of every teacher. To this end we urge that boards of education by their rules recognize this right, and provide stated meetings at which teachers will be heard. In order to guarantee such participation, we urge state legislatures—the final authorities through whose action local boards of education exercise the control now vested in them—to enact laws providing that teachers may appear before boards of education, providing that these boards shall give them an opportunity to present their suggestions and proposals for improving the work of the schools.

"If these steps are taken not only will the insight, knowledge, and skill of every teacher be made available for the promotion of educational progress, but the responsibility and influence of the classroom teacher will be officially recognized, the calling will become thereby more dignified and attractive, and large numbers of the strong and capable young men and women of the country will enter public school service as a life career. Next to the provision of better salaries for teachers, nothing will do more to raise the status of the profession and make its service attractive to the kind of men and women that the schools need, than the adoption of a policy that will lift the classroom teacher above the level of a mere routine worker carrying out in a mechanical fashion plans and policies that are handed down from above.

"In recognition of the principles of democracy in public-school service, there must be added to the wisdom of the boards of education and to the judgment and executive ability of their administrative officers the effective participation of classroom teachers in the development of the policies which control education."

FEDERAL BOARD OF VOCATIONAL EDUCATION. For the school year ending June 30, 1919, the Federal Board of Vocational Education reports a total of 2039 schools of all types as having received reimbursement from Federal funds on account of vocational courses. This was an increase of 298 schools over the previous year. The total amount of Federal funds was \$1,136,519.01. Eight hundred and sixty-three of the schools were agricultural. These institutions received \$526,122.43 of Federal funds. Among the trade and industrial schools the evening course was the most popular, being given in 325 schools, while 83 schools gave part-time trade and industrial education and 167 gave all-day instruction. Vocational courses in home economics were given for evening students in 127 schools, for part-time students in 27 schools and for all-day students in 309 schools. Schools of one or more types are found in every State in the Union. The largest number is found in

the East Central States. The Southern and East Central report 557 of the 863 agricultural schools. New York, however, has the largest number of agricultural schools for any single State.

EDWARDS, MATILDA BETHAM. British author, died at Hastings, England, January 4th. She was born at Suffolk, England, and wrote extensively on aspects of French life with which she was familiar. A list of her writings includes the following: *The White House by the Sea*; *Kitty*; *Dr. Jacob*; *John and I*; *France of To-day*; *Poems*; *The Golden Bee* (ballads), (1896); *Reminiscences*; *A Romance of Dijon*; *The Lord of the Harvest*; *Anglo-French Reminiscences*, (1889); *A Suffolk Courtship* (1900); *Mock Beggars' Hall* (1901); *East of Paris* (1902); *Barham Brockleband, M. D.* (1904); *Home Life in France* (1905); *Literary Rambles in France* (1907); *Poems* (1907); *French Men, Women and Books* (1910); *In French Africa*, (1913); *Hearts of Alsace* (1916).

EDWARDS, VINAL N. American biologist, died in April, 1919. He was one of the best-known workers at Woods Hole during the summer. He was born in 1859 (?). He was self-educated and not extensively known outside of the scientific world but was highly regarded for his work as a collector of new species.

EGAN, PATRICK. Irish American politician and one of the founders of the Home Rule movement in Ireland, died September 30th, in New York City. He was born in County Longford, Aug. 13, 1841, and after beginning work as a bookkeeper became the head of an important flour and grain business in Dublin. He was strongly Nationalist in sympathy and was active in the formation of the new Home Rule party, and also in that of Irish Land League, of which he was one of the trustees in 1879. He was involved in the accusation against Parnell and in 1880 was tried for sedition and conspiracy in Dublin. After his acquittal he passed two years in Paris and in 1883 came to the United States and settled in Nebraska. He was president of the Irish National League of America from 1884 to 1886. In American politics he was active as a Republican and headed the delegation from Nebraska to the Republican National Convention of 1888. Meanwhile, though not yet a citizen, he had been a strong supporter of Blaine in the campaign of 1884. In 1889 he was made minister to Chile where he incurred criticism for his support of Balmaceda. During the campaigns of 1896 and 1900 he went over to the free silver cause and campaigned for Bryan.

EGYPT. A British protectorate in north-eastern Africa. In December, 1914, it was a khedivate under British control, but nominally under the suzerainty of Turkey. However, in that month, it was declared a British protectorate. Capital, Cairo.

AREA AND POPULATION. The total area of Egypt, including the Libyan desert, the region between the Nile and the Red Sea, the Sinai peninsula, and exclusive of Sudan, is about 350,000 square miles. The Nile valley and delta, the cultivated and settled area, covers 12,226 square miles. The Nile surface, marshes and lakes cover 2850 square miles. To facilitate government, it has been divided into five governorships of the chief towns and 14 provinces, of which six comprise Lower Egypt and eight,

Upper Egypt. The population, according to the census of March, 1917, gave a total of 12,710,120, or a population per square mile of 1057, exclusive of nomad Bedouins. For details of the distribution of this population, see the previous YEAR BOOK. The population of Cairo in 1917 was 790,939; Alexandria, 444,617; Port Said, including Ismalia, 91,090; Suez, 30,996; Damietta, 30,984; Tanta, 74,195; Mansura, 49,238; Zagazig, 41,741; Damanhör, 40,000; Benha, 18,607; Shibin-el-Köm, 25,414; Asyût, 51,000; Aswân, 11,293; Beni Suef, 31,986; Faiyûm, 44,400; Sohâg, 22,000; Gtza, 18,714; Qena, 23,357; Minya, 35,000.

EDUCATION. The Maktabs, or elementary vernacular schools, which are under the direction of the Ministry of Education or provincial council, provide elementary instruction. There were 3612 Maktabs in 1917, with an attendance of 200,754 boys and 28,028 girls, making a total of 228,782, and 7233 teachers. These received a government aid of 22,247 pounds (Egyptian). This government aid is made contingent on the teaching of reading, writing and arithmetic, apart from any religious teaching, and upon the school's reaching a satisfactory level of efficiency. There are, besides the Maktabs, higher elementary schools, elementary training colleges for teachers, industrial, agricultural and commercial schools, and higher primary schools. These numbered in all, in 1918, 3733, with a total attendance of 242,025. Under the government departments are a school of law, military school, veterinary school, a higher and intermediate school of agriculture, a school for cadets, and a police school. The chief Moslem university of the world, Azhar university at Cairo, provides an opportunity for higher native education. At Cairo there is also maintained a national university under Egyptian management. It is estimated from the latest available statistics that the distribution of population according to religious faith was 91.84 per cent Moslem, 7.81 per cent Christian, .34 per cent Jewish, and .01 per cent others. At the end of 1919 inquiry into the grievances of the natives (see below, *History*) led to some severe criticism of the British administration in respect to its educational policy. It was pointed out that after 40 years of intervention about 92 per cent of the men and 99 per cent of the women could neither read nor write and it was estimated that 20 more years of work would be required to supply Egypt with schools enough and teachers enough to meet the needs of 90 per cent of the boys and 50 per cent of the girls of school age for primary instruction. Some 8000 schools and 30,000 teachers were said to be needed. The British policy had been directed almost exclusively to the support of secondary education and to the maintenance of the few institutions of higher education, such as schools of law, medicine, technical schools, and schools of pedagogy. It was said that not much progress had been made even in this field. It was not possible for a large proportion of the young men who had passed examinations for higher courses to secure admission to an institution of higher education. For example, it was noted that in 1916 out of 619 candidates who had passed the necessary tests only 341 had found places in the institution they desired to enter. The only medical school whose diplomas were recognized abroad was able to provide for

no more than 50 candidates a year, while Egypt required several hundred doctors. Thus many native students were obliged to go abroad to finish their studies and the results were demoralizing. The government had decided to open some secondary schools but there were no real universities in the western sense, nor were there any schools for the study of the languages and archaeology of the East. The personnel of the private schools was said to be ill paid and inefficient. These defects in higher education compelled the natives to seek instruction at the great university of El Azhar which was the centre of Moslem orthodoxy and not only excluded Western institutions but created prejudice against Western thought. For the past 15 years Egyptians had been demanding a wider use of the Arabic language in teaching. Here arose a difficulty because the Moslem tendency was to use only the language of the Koran in the schools, which is an archaic form of no practical value for the ordinary purposes of modern life. Finally it was said that the Egyptian education budget was lower in proportion than the budget of more backward nations. Thus the Balkan states devoted from 7 to 10 per cent of their revenues to public instruction, while Egypt applied only 2 per cent of hers. The fellah on whom the main burden rested received only a meagre benefit from the results.

AGRICULTURE. Egypt's arable area was placed at 7,932,077 feddans (a feddan equals 1.038 acres) of which 2,663,539 feddans could be cultivated only after reclamation, in 1918. In 1917 there were 8242 foreign land-owners, owning 713,105 feddans. In 1917, the natives owned 4,773,050 feddans, with a total number of land-owners amounting to 1,662,803, making a total area of 5,486,155 feddans owned by 1,671,045 land-holders. Forced labor has been abolished, but in flood time, the inhabitants are still called out to guard or repair the Nile banks, and they are also liable in any emergency. In 1916, 113,000 were called out. The agricultural population in 1918 formed about one-eighth of the whole population. The landless natives are laborers, the relation between employers and employed being mostly hereditary. The agricultural year includes three crops, cereal produce of all kinds being sown in November and harvested in May or June. Cotton, sugar and rice, the principal summer crops, are sown in March and harvested in October and November. Rice, maize, millet, and vegetables are sown in July and gathered in September and October. In lower Egypt, perennial irrigation by means of intersecting canals, finding their source in the Nile, produces cotton, rice, Indian corn, wheat, barley, clover and cucumber. In Upper Egypt the system of navigation is the submersion at high Nile or the basin system, and cereals and vegetables are produced.

Large reservoir works, including a dam at Aswân, a barrage at Esna, a barrage at Asyût, and a barrage at Zifta, had been completed and put into final successful operation in 1919. The original storage capacity of the reservoir was 1,065,000,000 cubic meters. The capacity of the reservoir has been increased to 2,423,000,000 cubic meters by raising the level of the dam 6 meters. Adequate irrigation to a wide area of basin land is assured by the barrage at Esna, even in a year of low Nile. An area of approximately half a million acres has been converted

north of Deirût, from basin to perennial irrigation in the last 10 years. The principal wealth of the country is derived from cotton. The American markets being more or less closed until the end of the war to European centres, the production in Egypt was constantly stimulated. The cotton crop of 1919-20 was estimated in the autumn of 1919 at 6,000,000 qantars (or cantars. See COTTON. In 1917 the area and yield of wheat were 1,116,450 acres and 811,969 tons, respectively; barley, 444,790 acres and 290,071 tons; maize, 1,734,637 acres; millet, 277,137 acres; and rice, 266,449 acres.

A good oil supply for Egypt seems to be assured. Finds of importance have been made at Gemsah. Further new fields have been discovered at Hurgada, which have proved to be of singularly regular formation, with a steadily increasing yield, until, according to the most recent 1919 reports, their average monthly yield is over 15,000 tons of crude oil. The Suez refinery had been enlarged and there was every reason to hope that as much oil will shortly be available for internal consumption as can be dealt with by the company's existing facilities. It was stated that, in consequence, most of the public utility companies in Egypt had converted their plants to burn petroleum residue.

COMMERCE. The imports and exports are given in pounds (Egyptian) for 1918. Merchandise: Imports, 51,155,306; exports, 45,370,020. Specie, imports, 611,009; exports, 5500. A table of the principal countries of origin and destination is shown as follows, in pounds (Egyptian):

Countries	Imports from 1918	Exports to 1918
Great Britain	27,077,635	30,342,496
British colonies in the Mediter- ranean	284,873	436,603
India and Aden	4,094,241	321,924
Australasia	2,475,649	56,237
United States	491,319	4,286,318
China	1,250,242	15,836
Japan	2,583,968	967,664
France	1,834,789	2,063,217
Greece	2,170,668	871,617
Italy	2,414,070	2,410,632
Switzerland	369,754	911,997
Spain	315,516	1,024,171

A table of principal articles of trade, values in pounds (Egyptian) for 1918, follows:

Merchandise	Imports	Exports
Animals and animal food prod- ucts	2,293,487	375,924
Hides, skins and leather goods	501,454	622,342
Other animal products	135,542	40,055
Cereals, vegetables	1,361,924	3,413,114
Colonial produce	2,110,638	1,246,729
Spirits, oils, etc.	4,737,141	225,639
Rags, paper books	1,658,673	73,567
Wood and coal	5,415,669	50,952
Stone earthenware and glass	730,488	2,408
Coloring materials	580,024	7,097
Chemicals, perfumes, etc.	1,880,433	187,810
Textiles and yarns	22,190,345	38,297,810
Metals and manufactures	2,858,776	71,173
Sundries	1,599,801	23,245
Tobacco	3,100,929	732,155
	51,155,306	45,370,020

* The cotton tissues imported amounted to 13,686,079. The quantity in raw cotton exported was valued at 38,034,476.

The 1918-19 exports of cotton were made up

of 718,309 bales (bale about 750 lbs.) with proportions to various countries of destination as follows:

	Bales		Bales
England	459,774	Dutch E. Indies.	10
Spain	10,436	Italy	49,328
United States.....	95,262	Portugal	250
France	78,487	Greece and Syria.	2,602
Japan	22,160		
		Total	718,309

The values of the exports of hides and skins from Egypt to all other countries and the United States for 1917, were: United States, \$125,465; all other countries, \$3,813,588. In 1919 the production of woolen sheepskins was about 150 pieces. The annual production of Behara skins was about 200,000 pieces in 1919. The Behara skins are used mostly by the local tanners for the production of Basils, which in turn are chiefly exported, the largest part going to the London market. The annual output of Egyptian lambskins approximates 100,000 pieces. Before the war, Egyptian lambskins were largely exported to Austria via Trieste. Upper Egypt produces the larger amount of goatskins, the annual output of which is approximately 450,000 to 500,000. Buffalo calfskins are likewise an Upper Egypt product, about 250,000 pieces making up the annual output. A large portion of these is exported. Camels are perennially slaughtered in Egypt. The annual output approximates 100,000 pieces. Exports from the Sudan for 1918 are given as 750 tons of hides. The large demand for Arabian hides is met through Egypt and the Sudan, which act as re-exporting centres.

The arrival and export of cotton-seed at Alex-

Exports	243,956
Local consumption	64,586
Total	308,542
Stock on hand, Sept. 1, 1919	9,339
Local consumption in the interior	36,392

Exports of ground nuts from Egypt during 1918 and of ground nuts and sesame during the five months ending May 31, 1919, were as follows: 1083 metric tons, valued at \$194,064, constituting the export of ground nuts from Egypt during 1918, and 261 metric tons, valued at \$41,777, being the exports for five months ending May 31, 1919. The exports of sesame for these same months were 465 metric tons, valued at \$134,727.

INDUSTRIAL CONDITIONS. An important change was effected in August, 1919, when the government monopolies over the purchase and sale of cotton-seed and cotton-seed products came to an end. Business was reported as improving in 1919. Activity was shown especially in the repair and restoration of property that had been neglected during the war. As to industrial conditions generally there was a tendency to organize trade unions in almost all branches of economic life and many strikes were reported including dock laborers and the street railway employees. The increase in the cost of living in 1919 over 1914 may be illustrated by the following items: Mutton, 1914, per oke, 50 cts., in 1919, \$1.50; veal, \$4.00 and \$1; butter, \$.50 and \$.25; frying oil, \$.25 and \$.2; milk, \$.075 and \$.25.

FINANCE. The final accounts for the year 1917-18, April 1st to March 31st, and the budget estimates for the year 1918-19 are as follows in the *Statesman's Year Book*:

Receipts	1917-1918 Actual figures £E	1918-19 Estimates £E	Expenditure	1917-1918 Actual figures £E	1918-19 Estimates £E
Direct taxes:			Civil list	363,330	364,019
Land tax, etc.	5,608,712	5,580,000	Expenses of administration...	7,032,504	8,234,545
Indirect taxes:			Expenses of revenue earning administrations:		
Customs	3,159,508	2,826,000	Railways	3,178,597	4,750,508
Tobacco	1,810,719	1,800,000	Telegraphs	120,251	129,727
Excise	361,675	634,000	Post office	323,672	344,223
Miscellaneous taxes	321,876	218,000	Telephones	559,650	140,000
Receipts from revenue earning administrations:			Army:		
Railways	5,003,662	6,000,000	Egyptian army	1,208,440	1,501,115
Telegraphs	188,928	135,000	Army of occupation	146,250	146,250
Post office	359,758	315,000	Pensions	732,434	754,723
Telephones		200,000			
Receipts from administrative services:			Tribute and debt:		
Ports and lighthouses.....	68,383	64,000	Tribute	664,826	664,826
Judicial and registration fees.	1,627,294	1,481,000	Expenses of Caisse de la Dette	35,000	35,000
Miscellaneous revenue	4,111,345	3,499,000	Consolidated debt	3,552,266	3,552,266
			Non-consolidated debt	344,431	353,072
Total ordinary revenue.....	22,621,860	22,752,000	Sundries		26,290
Extraordinary revenue.....	544,214	148,000	War gratuities	327,676	564,000
Draft on general reserve.....		350,000	Extraordinary expenditure in connection with the war.	2,967,056	500,000
Total	23,166,074	23,250,000	Total ordinary expenditure.	21,556,383	22,060,564
			Expenditure for new works..	940,565	1,189,436
			Total	22,496,948	23,250,000

andria, practically the only Egyptian port of export, for the 12 months ending Aug. 31, 1919, are given as follows, in metric tons:

Stock on hand, Sept. 1, 1918.....	8,497
Arrivals	309,384
Total	317,881

The debt and charge on guaranteed loans, privileged debt and unified debt in April, 1918, were as follows: Debt, £93,565,740; charge £ (E.) 3,552,266. On Apr. 1, 1918, the debt stood at £93,565,740, inclusive of the amount of £5-,370,520 held by the government, and the Caisse de la Dette Publique. In 1917-18 the debt was

reduced by £175,200. The charges on accounts of debts of all kinds, including tribute, as shown in the estimates for 1918-19 amount to £ (E.) 4,605,164. In 1888 and 1890, reserve funds were established, the balances of which were placed at the disposal of the Egyptian government in 1905, less certain sums remaining in the hands of the Caisse de la Dette Publique for the service of the debt. This amount was deposited to the account of a General Reserve Fund. In this fund on Apr. 1, 1918, there was a balance of £ (E.) 8,155,438, including £ (E.) 1,385,257, realized from the minting of new coinage.

DISORDERS AND GRIEVANCES. The grievances enumerated by the Egyptians in 1918 and 1919 included the following charges: Cruel treatment of native soldiers, prohibition of the meetings of the legislature during the war, harsh censorship of news and opinions, suppression of native newspapers and political discussion in the state schools, exclusion from Egypt of any one suspected of being nationalistic and the arrest of national leaders who wished to represent Egypt at Paris. During the closing months of 1918 and early in 1919 these and other causes led to a widespread spirit of disorder, and in March to virtual insurrection. The police were called upon to clear the streets of riotous mobs in Cairo March 10th. This outbreak occurred after it was learned that several of the nationalist leaders had been arrested. Many students in the higher schools were involved in the riot, the movement having begun in the lower schools. They made demonstrations before the government buildings on behalf of the arrested leaders. The police were reinforced by British troops and some shots were fired upon the mob, killing and wounding several. It was necessary again to fire upon the mob on the following day in order to disperse it. Hostile demonstrations took place at Tantah, 50 miles north of Cairo, where 11 persons were killed and 51 wounded. According to reports published on March 13th the number of killed in Cairo was placed at 6, and the number of wounded at 31. The British press reported that telegraphic communications both with Upper and Lower Egypt had been broken in many places and that there had been a widespread attack on the railways. There was great activity on the part of the independence party at Cairo which insisted that the British were depriving the Egyptians of certain government positions to which they had a right and instanced the alleged policy of training the men of the expeditionary forces in government workshops as a means of fitting them for finding employment when they returned to England. At that time martial law was enforced throughout the country and the British government gave it to be understood that no conciliation would be undertaken until the disorders had ceased. Rioting was reported on March 20th when demonstrations took place at Alexandria and at several places in the Delta, but the military authorities were reported to have taken all the necessary measures. A few days later it was learned that the disorders were spreading far and wide, that Arabs had invaded from the west and that the insurgents were resorting to terrorism.

One feature of the uprisings was the siege of Assiut where at the end of March a small British detachment held out against bands of Bedouin and fellaheen numbering about 3000. At the same time some 900 convicts attempted to escape

from jail. According to reports the defense was a gallant one. The town was relieved by boats sent down from Cairo.

GENERAL ALLENBY MADE HIGH COMMISSIONER. On March 22d it was announced that General Allenby had been appointed Special High Commissioner for Egypt with full military and civil powers and was entrusted with the task of restoring order and taking all necessary measures for upholding Great Britain's authority as a protecting power. He arrived at Alexandria March 25th and at that time the conditions were reported to be improving. The nature of the movement as described in correspondence to the *London Times*, at that time, may be briefly summarized as follows: It was already seen in February that serious trouble would follow the departure of the High Commissioner Sir Reginald Wingate because the Nationalists would regard it as a triumph of their leader, Prime Minister Rushdi Pasha. In two years this was the second time that the High Commissioner had suddenly left the country. In December, 1916, the High Commissioner returned and his place was taken by another officer and it was interpreted having been done in obedience to the wish of this same Prime Minister Rushdi. Over a year before a plot had been discovered and four Pashas were arrested without taking any measures of safety and it was argued that if precautionary measures had been taken the disturbances would never have occurred. The English should have encouraged the conservative element. This element largely centered around the ownership of cotton lands. The great cotton-growers had no sympathy with the Nationalist party. Then there were the agricultural interests, the army, the clergy, and the traders in Cairo, all of whom might have been united against the groups that aimed at revolution. These groups according to the *Times* correspondent consisted of the idle classes who were first, the poorer class of clerks and the street arabs in the towns; secondly the lawless natives of the western banks of the Nile; third, the Bedouin people of the cultivated territory in Fayoum and elsewhere. The native population had greatly increased as a result of the British sanitary methods and there was a large number of unemployed young men in the towns. They belonged to the class that could not become agricultural and they seemed unsuited to commerce in which the Jews or Greeks showed greater ability. They were easy victims of agitation and popular delusion. This was a serious element of danger in all large towns. Along with them might be classed the thousands of street arabs, shoe-blacks, newsboys, etc. The disorderly tribes of the interior had always constituted a danger. They lived in the wilder parts of the country along the banks of the Nile, especially in Upper Egypt. As to the Bedouins, they were beggars and vagabonds and constituted a dangerous and worthless element in the population. General Allenby upon his arrival said that he would put down disorders first and then make a careful inquiry into the grievances. On April 5th it was announced that the leading Egyptian notables had issued an appeal to the people to remain calm; but soon afterwards it was learned that the native government officials in Cairo had gone on strike as a protest against Lord Curzon's statement that there was no sympathy on the part of the official class with the revolutionary movement. The strike was ac-

accompanied by demonstrations in the street which resulted in riots and conflicts with the troops. Order was restored but six persons were killed during the uprising. On April 11th it was learned that a new ministry had been set up under Rushdi Pasha who had resigned just before the Nationalist outbreak and who brought back with him the principal members of the last cabinet. At the same time Zaglul Pasha and his three companions who had been deported to Malta and were the subject of much popular sympathy were released. This event was followed by public rejoicings during a period of three days and the occasion was marked by several attacks upon the military resulting in the killing and wounding of several British soldiers. The Sultan issued a proclamation urging the people to maintain public order. One of the first acts of the new ministry was to confer with the Egyptian officials who had gone on strike. Many casualties were caused by the throwing of vitriol and on April 21st it was reported that the Egyptian government had imposed the penalty of death for this offense. At this time there was much intimidation of the native officials and of the employees in the postal and railway services. The political strike was one of the measures taken by the disorderly element. On April 22d conditions were improved but the railways were said to be at a standstill and there were still frequent attempts to intimidate employees. Rushdi Pasha resigned April 23d, and a new ministry was formed under Mahomed Said Pasha, who was described as a disciple of Cromer and Kitchener.

CAUSES OF UNREST. There was no question that the agitation in Egypt involved a large part of the population including the educated classes. Provincial and government officials, members of the bar, students at the colleges as well as the inevitable disorderly element were all involved in it. The chief cause was in the first instance political. The educated Egyptians and the official classes professed to believe that they would be better off if their nation could administer itself and they resented the presence of the British. The more moderate among them favored passive resistance as in India, but they were carried along by the more violent class. The members of the legal profession insisted that the British had the intention of introducing entirely new legislation based on English law and substituting English for the Arabic as the language of the courts. These and other false rumors stirred up public indignation. The speeches and articles among the Allied nations in regard to the rights of peoples gave an impetus to the movement. College students were especially prominent in it and some of the most violent attacks were led by them. There was talk of German influence and money. There was a considerable Coptic element among the revolutionists. The Copts complained that they had not been treated by the British as they should have been treated considering the fact that they were fellow Christians. The railway workmen were offended by the rumor that the British intended to bring in British workmen after the war. The peasantry or fellahen joined the movement in great numbers, to the surprise of their British rulers for they had been regarded as the most law-abiding of the Egyptians and had always shown respect and even gratitude toward their foreign masters. One of their

grievances was the requisitioning of food and farm animals during the war and their discontent was played upon by the fanatical Moslem element and by the students.

POLITICAL UNREST. In November an appeal was addressed to the President of the United States by the Egyptian leader, Saad Zaglul Pasha, in which the United States was urged not to leave the Egyptian people at the mercy of England. In certain French quarters the situation in Egypt was emphasized as indicating the inferiority of British colonial policy to the French. In respect to Egypt for example, a writer reminded France of the time when her civilization extended to the borders of the Nile, and argued that French prestige had made so many friends for her in Egypt, that but for the short-sightedness of politicians, France to-day might consider Egypt as thoroughly French in spirit as was Syria. The French pointed out that the British control had never resulted in cordial relations between the two races, for the Egyptian character was altogether different from the Anglo-Saxon; it bore more resemblance to the French. While England might grant many benefits she would never reap the good-will or gratitude of the country. She could make slaves of them but not friends. This, said the critics, the English themselves had discovered with regret. After 38 years of British administration, on the whole beneficent, the Egyptians still feared the English and detested them. At the present time forcible measures had to be undertaken to maintain the British protectorate. The French argued that if order could be maintained only by means of machine guns, if troops were obliged to fire upon crowds to prevent their demonstrations, and if, overwhelmed by this wave of nationalization, the British authorities had now to employ the methods of the Germans in order to stifle the agitation of patriots, it was the fault of England herself. In the *White Book* published by the Egyptian delegation at the Peace Conference, England was accused of a series of atrocities that recalled the methods of the Germans. Official reports of Egyptians, and minutely detailed documents, were submitted at the time. In a letter addressed to M. Clemenceau by Zaglul Pasha, June 28, 1919, it was charged that the general in command of the British forces had given the formal order to all the Egyptians, even the highest functionaries, to salute every British officer encountered in the streets; that Egyptian villages had been pillaged and burned, women violated, and men massacred on mere suspicion; and that many natives had been publicly whipped on various pretexts; and photographs were attached to this document and accompanied by medical testimony, showing the physical condition of the alleged victims who were, according to the report, guilty only of patriotism. French commentators were surprised that in the United States so ardent a sympathy was expressed for the wrongs of Ireland, and such complete indifference was shown toward the cause of Egypt; for Ireland, apart from everything else, had done her best to aid the Germans. The United States was criticised for having accepted the kingdom of Hedjaz, and at the same time not expressed a sympathetic word for the Egyptians. Egypt had declared war against Germany in August, 1914, and this was not a merely formal act, for Egypt had furnished men and money in the war. She had

	<i>Manu- factured in the year 1917</i>	<i>Estimated value of the same in 1919</i>
Insulators, glass and porcelain	4,000,000	10,500,000
Storage batteries	18,000,000	62,500,000
Wire	27,000,000	45,000,000
Wireless apparatus	3,100,000	2,000,000

ELECTRIC LIGHTING. During the early part of the year the after effects of war manifested themselves in the electric lighting industry to a considerable extent. Many central stations that had arranged for the supply of large amounts of power to industrial plants engaged in making munitions were forced by the sudden termination of hostilities in Europe to find a new market for the sale of their energy. This led to an intensive campaign for the further development of industrial and domestic electric lighting. Incidentally, there were several improvements in the efficiency of lamps that were worthy of note. Continuing the tendency of the two preceding years the gas-filled Mazda lamp was replacing arc lamps for street lighting, as well as for the illumination of large public places such as railroad stations, halls, etc. By an improved method of treating the carbons used in flaming-arc lamps a higher degree of efficiency and a whiter light was obtained from the latter and this enabled them to hold their own in some localities for municipal lighting on account of the extreme brightness furnished by them where particular features of display illumination were desired. In industrial plants more attention than ever was given to improved methods of illumination, with the special object of enabling the employees to see their work more clearly and, at the same time to avoid the creation of glare which constituted so bad a feature of poorly designed factory lighting, in so many cases proving injurious to the eyes of the workers. Several States had adopted standard codes for the illumination of factories and workshops, but as with legislation on similar subjects there was a lack of uniformity in the conditions imposed as regards the intensity of illumination or the distribution of the lighting units themselves. It was hoped that the ensuing year would see an improvement in this respect, as the Illuminating Engineering Society was carrying on an active campaign, with the Legislatures of different States on this subject.

Much more attention than formerly was given to better lighting for streets, and there were many opportunities during the year for the installation of display illumination. On the arrival of American troops from France there was a very carefully designed and well executed scheme of decorative lighting put into effect on Fifth Avenue, New York, one of the features of this being a replica of the "arch of jewels" that had been so prominent a feature in the artistic illumination of the Panama-Pacific Exposition at San Francisco in 1915. The daylight saving law was repealed by Congress, but that action did not represent accurately the sentiments of the entire United States, as was evident from the fact that at the close of the year several State Legislatures were considering the reenactment of such a measure. The consensus of opinion was, however, that unless the revival of daylight saving could be made effective over the entire United States, or at least over certain defined regions, the resulting confusion and incon-

venience would make it quite impracticable. A matter to which the Illuminating Engineering Society has given special attention was that of automobile headlights. The intensity, direction, and various other conditions controlling these lights were the subject of extensive legislation and many States had in force regulations regarding these details, but there was only a general agreement between them, while leaving many details still unsettled. The introduction of electric headlights for railway locomotives was carried on at a rapid rate and after the initial prejudice against such lights on the part of enginemen had been overcome, they were found highly satisfactory in service, particularly after means were added for dimming a headlight when one train was approaching another, thus overcoming the difficulties of vision due to the glare of which the enginemen had complained. These locomotive lighting units were largely standardized by the manufacturing companies and consisted of a small turbo-generator, the turbine being operated by steam from the boiler, mounted usually in front of the engine cab and wired to a cut-out block in the cab where the fuses and dimming switches for the headlight as well as those controlling the cab and running lights could be manipulated. See MUNICIPAL OWNERSHIP.

ELECTRIC POWER, TRANSMISSION OF. No notable undertakings in long-distance transmission lines were started during 1919; some construction work was going on, however, on the extension and completion of lines on which work had been started for the distribution of energy to plants originally designed for the production of war munitions and later modified for other forms of output. The interconnection of different transmission lines referred to in the 1918 YEAR BOOK, for the purpose of equalizing the load among several generating systems supplying large areas was extended to a considerable degree. In many instances this had the advantage of allowing an existing steam station to be replaced by a substation fed from some distant hydroelectric plant, thus diminishing the maintenance charges inseparable from steam operation.

On long lines there was an increasing preference shown for synchronous condensers, which were merely synchronous rotary converters for absorbing the surges of voltage due to uneven or irregular loading. Electrical engineers, while giving serious consideration to the practicability of employing alternating current pressures as high as 220,000 volts did not put their ideas to the test of actual practice, the average transmission voltage on long lines remaining at between 100,000 and 150,000 volts. In connection with such lines, outdoor switching stations were increasingly common, and more efficient protective devices gave promise of material reduction in interruptions due to lightning as well as from accidental short circuits.

In Europe, particularly in France, there was a revival of interest in the Thury system of high tension, constant current, transmission employing a series of direct current generators. This had given very satisfactory results in the past on account of the simplicity of the controlling apparatus and comparatively low cost of maintenance. Several long lines to operate on this system were projected, deriving their energy from French water powers.

ELECTRIC RAILWAYS. See RAILWAYS, ELECTRIC.

ELECTROLYTIC PROCESS OF SEWAGE TREATMENT. See SEWERAGE.

ELECTRON ARRANGEMENT IN ATOMS. See CHEMISTRY, GENERAL PROGRESS OF.

ELKINS, GEORGE W. American capitalist, died in Philadelphia, Pa., October 24. He made a large fortune in various fields, especially in traction. He was born in Philadelphia, Sept. 26, 1858, and was educated in the public and private schools. Among the many corporations in which he was interested, may be mentioned Philadelphia Traction, Union Traction, Union of Coke and Gas, and the Metropolitan Street Railway of New York City.

ELLYSON, JAMES TAYLOR. Prominent business man and Baptist, died at Richmond, Va., March 18. He was a Confederate veteran and was prominent for many years in the Democratic party of Virginia. He was born at Richmond, Va., May 24, 1847, and graduated at the University of Virginia in 1869. He served in the Civil War and afterwards engaged in business in Richmond where he soon was called to positions of prominence, being State Senator 1885-88 and mayor of Richmond for three terms beginning in 1888. For 25 years he was chairman of the Democratic State committee and he was Lieutenant-Governor of the State, 1916-18. He was for 40 years Executive Officer of the Educational Board of the Baptist General Association of Virginia.

ELON COLLEGE. An institution of learning maintained by the Christians, at Elon College, N. C. In the fall of 1919 there were 400 students and 28 members of the faculty. The library contains 12,000 volumes. The funds of the institution in 1919 were \$528,000. The college was organized in 1889. President, William Allen Harper, Litt.D., LL.D.

EMERY, EDWARD K. Justice of the New York Supreme Court, died at Buffalo, N. Y., November 11. He was born at Aurora, N. Y., July 29, 1851, and studied law at Buffalo where he was admitted to the bar in 1877. He was a member of the Assembly in 1887 and 1888, then appointed to judicial positions, rising to the justiceship of the Supreme Court of New York for the term Jan. 1, 1907, to Jan. 31, 1920. In politics he was a Republican.

EMMET, W. L. R. See EDISON MEDAL.

EMPLOYERS' LIABILITY. See WORKMEN'S COMPENSATION.

EMPLOYMENT. See LABOR LEGISLATION.

EMPLOYMENT SERVICE, UNITED STATES. See UNEMPLOYMENT.

ENDE, HERWEGH VON. An American violinist and noted teacher, died in New York, January 15. He was born at Milwaukee, Feb. 16, 1877. In 1910 he established in New York a violin school, which rapidly developed into one of the best known conservatories of the metropolis. He was a son-in-law of Eduard Reményi.

ENGINEERING. With government, industry and commerce the world over, badly disarranged and far from reestablished on a normal basis in 1919, it was not strange that engineering developments during the year should be rather inconspicuous in most fields and in most countries. Just as the engineering professions had been called to take part in the great world war, in the same way they had their part to play in the vast restoration, but the means and

facilities of peace were far more difficult to assemble than those of war, and enforced economies, national, corporate, and individual, hindered construction and initiative. Governments, national, state, and local, were in no position to undertake other than the most necessary public works, and conditions of world finance were far from favorable towards securing funds for national enterprises. Political conditions were unsettled, labor was far from stabilized or contented the world over, and post-war conditions in short were such that great engineering projects could in most cases advance but little beyond the discussion stage. Indeed the economic function of the engineer perhaps was more conspicuous than his designs and construction, and his part in the readjustment was destined to be large. Therefore the reader of the articles in this department in the YEAR BOOK for 1919 will find that the purely engineering is often subordinated to the political and economic, and while serious work may be done looking towards establishing normal conditions it will be found neither conspicuous nor spectacular. This is true for example in the case of BRIDGES (q.v.) where with the exception of a record bascule bridge across the Chicago River few structures of special note were completed or designed. Under AQUEDUCTS (q.v.) there was to be recorded only the beginning of the Schoharie project of the Catskill Aqueduct for New York City, while the most notable DAM (q.v.) perhaps was that for the Hetch-Hetchy Reservoir whose construction was begun in earnest. CANAL (q.v.) construction involved more the discussion of schemes of Internal Waterways both in Europe and the United States, but DOCKS AND HARBORS (q.v.) reflected the commercial activity set on foot by the war seen in the completion of some large graving docks and future plans to provide harbors adequate for the great world trade which seemed bound to ensue. FLOOD PROTECTION (q.v.) was a field where distinct progress was made in the United States. TUNNEL (q.v.) construction received an impulse in the active prosecution of the plan for a vehicular tunnel under the Hudson River between New York City and New Jersey. RAPID TRANSIT (q.v.) was still a vexed question during 1919, not on the side of engineering in the way of design and construction, but rather in the way of operation with advancing labor and other costs and political and economic elements, too often hopelessly and unintelligently combined, confused, and predominant. In SHIPBUILDING (q.v.) the vast quantity production that the war stimulated was beginning to be apparent and this rather than novelties of design was the outstanding feature. In MILITARY PROGRESS and NAVAL PROGRESS may be appreciated how engineers had some opportunity to consider the functioning of the various machines and methods that were hastily turned out during the war and their future availability for military or peace purposes. In electrical engineering there were no special developments save in some special machines discussed under DYNAMO ELECTRIC MACHINERY and RAILWAYS, ELECTRIC (qq.v.) the electric locomotive however undergoing some important modifications during the year as its increased use was clearly indicated. Railway construction and operation was an important question but figured rather in the realm of politics and economics than in engineering. In the United States and Canada lit-

the construction was done (see RAILWAYS) though railway control and operation were live topics. In Europe reconstruction figured along with difficulty of materials and rolling stock.

WORK OF THE ENGINEERING COUNCIL. This important American body of engineers first organized in June, 1917, was particularly active in 1919. During the war it had furnished to the United States government the names of 4000 engineers available for war service and with the conclusion of hostilities and the return of the troops it registered 5000 engineers and assistants for whom it sought to secure positions without cost to the registrants. It assisted in various ways, consulting and advisory in legislation and administrative developments and in advocating governmental efficiency. The council on Jan. 1, 1919, opened a Washington office in charge of M. O. Leighton, chairman, National Service Committee, which was useful in affording a varied service to engineers, especially in supplying information concerning congressional and department activities, also useful to government.

Under the auspices of the council there was assembled in Chicago, in April, 1919, a conference of 74 technical organizations having 105,000 members. This conference, permanently organized, drafted the Jones-Reavis Bill, and throughout the year was actively advocating its passage. This bill provided for the establishment of a National Department of Public Works, by modification of existing departments and is discussed in a subsequent paragraph.

As a result of an appeal to the President by the Engineering Council there were held conferences of the 14 government offices engaged in map-making, with prospects of greatly accelerating the completion of the topographical map of the United States. The proper compensation of engineers was a topic of general discussion during the year and the Engineering Council aided in securing increases of pay for railway technical engineers.

It also established a Committee on Classification and Compensation of Engineers, with sections on railroads, federal government, and municipal and State governments, and at the end of the year reported considerable progress. This committee was working with Congressional Joint Commission on Reclassification of Salaries.

The council aided in reinstatement of 350 engineers unfairly dismissed by City of New York, organized a Committee on Types of Government Contracts, and drafted a typical general law for registration of engineers.

Another evidence of activity was a request of the President to appoint engineer members of the Interstate Commerce Commission and of the International Joint Commission. Finally in a summary of activities of the Engineering Council these items are mentioned:

It assisted the State of New York in preparing a scheme for reorganization of State government.

It was engaged in studying curricula of engineering schools, making suggestions as opportunity offers.

It joined with National Research Council in a report on improvement of the patent system and practice, on which legislation has been based.

It participated in organizing the National

Board for Jurisdictional Awards in the Building Industry and has a member thereon.

On invitation of the House of Representatives committee, the Engineering Council sent delegates to present testimony on a national budget.

The Engineering Council in 1919 had 40 general correspondents and 27 correspondents of its Water Conservation Committee, distributed throughout the country. It had 22 committees, of whose 125 members 72 live at a distance from New York.

A PROPOSED DEPARTMENT OF PUBLIC WORKS. During the year 1919 Senator Jones, of Washington, and Representative Reavis, of Nebraska, introduced bills providing for a Federal Department of Public Works to take the place of the Department of the Interior and have charge of all the engineering activities of the United States Government. The bureaus of the Interior Department which were not concerned with engineering were to be placed under the jurisdiction of appropriate departments, while engineering bureaus from such departments were to be included in the new Department of Public Works.

The proposed new department would include the Supervising Architect's office, of the Treasury; the Construction Division, River and Harbor Improvements, the Mississippi River Commission, and California Debris Commission of the War Department; the Bureau of Standards and the Coast and Geodetic Survey of the Department of Commerce; the Bureau of Public Roads and the Forest Service of the Department of Agriculture. At the same time the Patent Office was to be removed from the Interior Department and placed under the Department of Commerce. The Bureau of Pensions was to be assigned to the Treasury Department and the Bureau of Education to the Labor Department. The Bureau of Indian Affairs was to be transferred to the Department of Labor, with the proviso that the engineering and construction work and the land and mineral surveys performed under the direction of the Bureau of Indian Affairs should be prosecuted under the Department of Public Works. Other minor branches of the Interior Department go under different cabinet offices.

The bill provided that the new Secretary of Public Works "shall, by training and experience be qualified to administer the affairs of the department and to evaluate the technical principles and operations involved in the work thereof." Four assistant secretaries, each to be paid \$7500 per annum, were provided for in the bill. One of these was to have jurisdiction over matters of engineering design, and construction; another over architectural design and construction; a third over all scientific work and surveys, while the fourth was to be in charge of land and naval matters.

The bill also provided that engineer officers of the United States army detailed on non-military work were to be assigned by the Secretary of War to like duties under the new departments for not over two years, and members of the Corps of Engineers may under the direction of the Secretary of Public Works be detailed by the Secretary of War to temporary duty in the new department for such instruction, training, and experience as may be desired.

Engineers throughout the country were very much interested in the Jones-Reavis bill and various technical organizations and Chambers of

Commerce in which engineers exercised influence passed resolutions endorsing the measure.

During the year the American Association of Engineers was formed and established national headquarters in Chicago. This association is not a technical organization, but one which promotes the social and economic welfare of professional engineers.

The engineering services of the United States government suffered considerable depletion during the year as a result of inadequate compensation, and in the United States Geological Survey 17 per cent of the scientific force resigned, according to the report of the Director. The average salary of 29 geologists who had left the Survey to enter private employment was \$2271, and the average initial salary of these men in their new private employment was \$5,121. After two years' service, this compensation averaged \$7804, and eight of the geologists were receiving \$10,000 or more in private positions. This condition was particularly serious, in view of the universal demand for the completion of mapping of the country, of which nearly 60 per cent of the area is totally unmapped. The estimated cost of this work was \$40,000,000, including the cost of revising the older survey. To carry on the work expeditiously and efficiently involved an organization of specially trained engineers, and Dr. Smith estimated that beginning with the field season in 1919, several hundred thousand dollars should be appropriated, which would reach a maximum of \$4,500,000 in 1928. Under such conditions the field surveys of the entire United States could be economically and effectively executed and the work completed in 1932.

LICENSING OF BRITISH CIVIL ENGINEERS. In July a proposal was placed before the Institution of Civil Engineers of Great Britain that steps should be taken to establish and regulate by law the registration for the civil engineering profession. The members voted approval of this proposition, and the Council was directed to introduce a bill into Parliament to attain this object. The principal provisions of the proposed bill were to be a definition of the term "civil engineering," and the creation of a register which would contain all corporate members of the Institution of Civil Engineers and of the Institution of Civil Engineers of Ireland, and also other persons engaged as civil engineers and members of important engineering societies or who had engaged in civil engineering practice for a substantial period. It was further proposed that the eligibility of individuals in the latter class be established and a high professional standard maintained.

Throughout the war there was a close contact between English and French engineers, and the members of the Société des Ingénieurs Civils de France during the year formed a British section to meet periodically in London. This new organization was to improve the relations between English and French engineers and scientists, and to further the kindly feeling and coöperation which was maintained between the engineers of the two countries during the war. It was proposed that the London section should endeavor to keep English and French societies of engineers in touch with each other, and even make arrangements for the exchange of engineering students between engineering firms of both countries. It was believed that matters of common interest, such as the Channel tunnel, the relation of the

shortage of coal to hydro-electric development in France, and other matters could be thoroughly discussed at the association's meetings in London.

ENGLAND. The term England, when used in referring to the government, is sometimes used for the United Kingdom of Great Britain and Ireland. England proper is the largest and most densely populated portion of the United Kingdom. See GREAT BRITAIN.

ENGLAND, CHURCH OF. This is the established church of England and Wales, and is represented by the Protestant Episcopal Church in the United States. In 1914 the church was disestablished in Wales and Monmouthshire by act of Parliament, but the process was deferred until after the war. So far active steps have not been taken. The King of England is the supreme governor of the church with the right to fill vacant archbishoprics and bishoprics. Many deaneries, prebendaries, and canonries are under the appointment of the First Lord of the Treasury, and a large number of livings and some canonries are in the gift of the Lord Chancellor. For administrative purposes the country is divided into two provinces, Canterbury and York, each controlled by an Archbishop, besides which there are 41 bishops and 38 suffragan and assistant bishops. Under the bishops are about 34 deans and 100 archdeacons. Under mandate of the King each province may sit in convocation, or council, for the purpose of passing regulations, resolutions, etc., affecting the clergy and the church in general. Such measures must be approved by the House of Parliament before they become effective. The latest available statistics (1915) show that there were 2,359,599 full members with 14,079 ministers. The number of adherents is about 7,000,000. There were also 3,063,437 Sunday school pupils and Bible class members. Voluntary offerings for the year 1915-16 totaled £7,061,000.

EPIRUS. A district of southern Albania and northern Greece, of uncertain boundaries. Population, about 230,000. The principal towns are Argirocastro, 12,000; Korytza, 8000. (Estimated in 1919.) In November, 1914, Greece, with the consent of the Powers, occupied North Epirus, and in March, 1916, formally took possession of the district. To the close of 1919, this occupation had not, however, been recognized.

EPISCOPAL CHURCH. See PROTESTANT EPISCOPAL CHURCH.

EPSTEIN, RICHARD. Austrian pianist, died in New York, August 1. He was born at Vienna, Jan. 26, 1869. Throughout his life he made a specialty of ensemble playing, having appeared with the foremost chamber-music organizations of Europe and America. From 1904-14 he lived in London. In 1918 he founded with S. Gardner (violin) and W. Willeke (cello) the Elshuco Trio.

EPWORTH LEAGUE. See articles on Methodist denominations.

ERITREA. An Italian colony on the west shore of the Red Sea, with an estimated area of 45,800 square miles, and a coast line of 670 miles. The population is largely nomadic, and was estimated to be about 380,000 in 1919. Capital, Asmara. The largest district is Massawah, having 2275 inhabitants, of whom 524 were European and 480 Asiatics, according to the latest available information. The military force

numbers 297 officers and 11,609 men. Salt is an important product, and pearl-fishing is carried on at Massawah and the Dahlak archipelago to the annual value of 250,000 lire for pearls and 800,000 lire for mother-of-pearl. Scarcity of water necessitates wide irrigation before crops are successful. Camels, oxen, sheep, and goats are common, and the produce consists of meats, hides, and butter, which supplies the local trade. In 1919 gold mines working about 6 miles from Asmara began to give indication of hopeful results. For the financial year of 1918-19, the revenue and expenditure of the colony was estimated at: Colonial revenue, 6,970,007 lire; state contribution, 6,650,000 lire; total revenue, 13,620,007 lire; expenditure, civil administration, 12,992,046 lire; military, 4,081,648 lire; total expenditure, 17,073,694 lire. There are 74 miles of railway from Massawah to Asmara, and now the line is being taken to Keren (58 miles) and Agordat (46 miles). There are 12 post offices, a telegraph line of 313 miles in length, and 471 miles of telephone lines. Two wireless telegraph stations have recently been opened. The imports and exports and tonnage entered (1916) are given in the previous YEAR BOOK. No later statistics are available. Governor, appointed in 1916, Senator Nobile Giacomo de Martino.

ESSAYS. See LITERATURE, ENGLISH AND AMERICAN.

ESTOPINAL, ALBERT. Congressman, died at New Orleans, La., April 28. He was born in Louisiana, Jan. 30, 1845, and served in a Louisiana regiment during the Civil War. He was a member of the Louisiana Legislature from 1876-1900, being for the last 10 years of that period in the Senate and he was Lieutenant-Governor of Louisiana from 1900 to 1904. He was elected to the 60th Congress and reelected to the 61st and subsequent Congresses, serving from 1909 to 1919. In politics he was a Democrat.

ETHNOLOGY. See ANTHROPOLOGY.

ESTHONIA. A former dependency of Imperial Russia, north of Livonia, and to the south of the Gulf of Finland. Area, 7605 square miles. Population, estimated in 1919, 1,744,000. It includes the five districts of Yuryev, Fellin, Werro, Pernau, and Oesel. Capital, Revel, fortified seaport with a population, estimated prior to the war, at 137,600. On May 3, 1918, the British government recognized the Esthonian National Council as a de facto independent body. See WAR OF THE NATIONS.

EUPHONY SOCIETY. See MUSIC, Choral Societies.

EVANGELICAL ASSOCIATION. A denomination largely composed of German-born citizens of the United States, who are scattered over all sections of the country. Its doctrines are very similar to those of the Methodist Church. According to 1919 statistics there were 154,564 communicants, 1697 churches, and 1160 ministers. Sunday schools showed an enrollment of 198,435 pupils, with 24,358 officers and teachers, besides a Young People's Alliance with 1148 societies and 39,718 members. The principal periodicals are the *Evangelical Herald*, and the *Evangelical Messenger*, published by the association in Cleveland, Ohio. Besides these, several periodicals are printed in German. Several hospitals are maintained in Philadelphia, Chicago, and other cities in the Middle West. Edu-

cational institutions are as follows: Correspondence College, Reading, Pa.; Evangelical Theological Seminary, Naperville, Ill.; Northwestern College, Naperville, Ill.; Schuylkill Seminary and Evangelical School of Theology, in Reading, Pa.; and a preachers' seminary in Germany. The headquarters of the association is in Cleveland, Ohio.

EVANGELICAL CHURCH, UNITED. The *Year Book* of the denomination shows the following figures for the year ending June 1, 1919: 88,847 members, showing a slight decrease from last year; 949 organized congregations, with 535 itinerant preachers, and 200 local preachers; 955 Sunday schools, with 13,409 officers and teachers, and a total enrollment of pupils of 138,632. The total value of the 410 parsonages was \$994,175; of the 897 church buildings, was \$4,930,616; while total value of all property was \$7,066,662. There were 442 missionary societies, which contributed \$37,389 during the year, besides 124 Young People's Societies with a membership of 4049 contributing \$8940 for missionary work. Missionary work is carried on principally in China, and on the Platte River. There were also 306 home missions operated during the year, a slight decrease from last year. The following colleges are maintained by the church: Albright College, Western Union College, the Bible Teachers' Training School, New York City, and the Illinois Training School for Christian Workers. The principal publication is the *Evangelical*, with publishing house at Harrisburg, Pa.

EVANGELICAL SYNOD OF NORTH AMERICA. Formerly the German Evangelical Synod of North America, this denomination stands for the positive and progressive principles of the German Reformation and emphasizes the union of the spirit in the bonds of peace among all the Protestant bodies of the country. According to the last available statistics (1918) there were 1414 congregations of which 1014 were in active membership with the Synod; 1057 pastors, with 260,213 communicants; 128,469 Sunday school pupils, with 12,546 teachers and officers. The total value of the 1293 churches, 783 school or Sunday school buildings, 917 parsonages and 525 cemeteries was given as \$18,439,172. There were also 242 men's societies with 13,592 members; 1060 Ladies' Aid societies with 63,368 members; 717 Young People's societies with 28,768 members and 97 mission societies with 4606 members. Benevolences of all kinds totaled \$654,256.17, of which \$305,279.20 was given over to the Red Cross, War Welfare, and Y. M. C. A. Bequests for the 13 months ending Sept. 30, 1919, totaled \$6319.97.

Missionary work is carried on in India and many parts of the United States. In the United States in 1919 there were 80 mission pastors in 17 districts and two outlying fields, maintained at the expense of about \$40,000. A new mission was started in Akron, Ohio. The Board of Foreign Missions reports great progress in their Indian schools, there being 4740 pupils in them at the beginning of 1919. A new mission is being organized for work in Honduras, and men will be sent down there in the spring of 1920. The Eden Publishing House, the official publication agency of the denomination, is in St. Louis, Mo., and there is a branch in Chicago. The Eden Theological Seminary is also at St. Louis and a preparatory academy is also maintained

at Elmhurst, Ill. The church maintains 12 deaconesses' homes and hospitals, two for epileptic and feeble-minded, and eight homes for orphans and old people, valued in the aggregate at nearly \$1,500,000.

EVOLUTION. See Zoölogy.

EXPERIMENT STATIONS. See AGRICULTURAL EXPERIMENT STATIONS.

EXPLORATION. Geographical exploration is steadily passing from its primary and limited purpose of merely discovering the existence of unknown lands or seas to higher phases of economic research and industrial utility. Its objects have been definitely described by the Smithsonian Institution as increasing our fund of information as to the inhabitants, the fauna and flora, and other features of the little-known regions of the earth. As in late years, war conditions have largely confined geographical exploration in 1919 to the western hemisphere whose investigators have almost entirely carried on this work, whether on their own or in distant continents.

AFRICA. In the interests of the Smithsonian Institution the Collins-Garnier French Congo Expedition (1916-19) continues its researches. From the base at Fernan Vas, Congo, despite adverse war difficulties, its members thoroughly explored adjacent regions for vertebrates, especially the great apes. In January last three of the seven consignments had been received by the Institution. These included 2000 specimens—antelopes, buffaloes, chimpanzees, gorillas, monkeys, and red river hogs. Another party, the Smithsonian African Expedition, under Edmund Heller, took the field in 1919. It is to collect animals, plants and other materials for comparison work with the African collections in the National Museum. The field of operations covers the Cape region, the Zambesi Victoria Falls, western Rhodesia and the country surrounding Lake Tanganjika—considerable parts of little known Africa.

The Supreme Council of the Allies has issued provisional mandates for the conquered African colonies, as follows: German Southwest Africa to the Union of South Africa; German Southeast Africa to be divided between Great Britain and Belgium; Togo Land and the Cameroons to be divided between Great Britain and France. While the recasting of colonial possessions has caused much European work of geographical research, yet it has been largely economic. The Royal Society of Great Britain is supplementing earlier investigations of North Uganda by studies of the natives on the elevated grass lands between Lake Victoria and western Rift Valley. Under the Rev. John Roscoe—who has served many years in Uganda—the pastoral conditions and dairy methods of the Bahima, Batusi, and Baganda tribes will be thoroughly investigated—to the advantage, it is expected, of white settlers in Africa. Italian explorers have discovered in Erytheria, near the Abyssinian frontier, important bodies of chloride of potash. Years of African exploration and research by Captain Augiéras, of the French army, have been given form in 1919 by map and memoir of the western Sahara, a region practically unknown 15 years since, which contribution received the second award of the *Société de Géographie*. The dominant feature is a central plateau between 6° to 9° west longitude, and 28° to 31° of north latitude, of which El-Eglab is the highest region.

Surrounding the main plateau are encircling important depressions, making it a most rugged country. Two adjacent regions are yet badly known—the country between El-Eglab and Mauritania, and a desert to the southeast of El-Arucha. France has resumed its geographical extension in the Middle Atlas mountain range of Morocco, the least known and most inaccessible region of northern Africa. It was a preliminary reconnaissance made by airplane. The country flown over lies between Mekines and the sources of the Mulouya. It was barely known along its northern and western borders; the main country was blank on all maps save the narrow itinerary of Segonzac in 1905. Inhabited by savage and hostile Berbers, its direct invasion offered exceeding difficulties. The success in satisfactorily outlining the main features of the country by photography from the airplane demonstrates the practicability of using this novel method of cartography in other remote regions.

ASIA. War emergencies and demands put a stop to field work in general. However, Col. Sir W. Buchanan reports a recent visit into the little known valley of Chumbi, Tibet, the journey being made via Natu Pass to Phari. War researches have thrown light on the mineral resources of Georgia, which prove to be important although almost entirely unexploited. Manganese is the most valuable, as there are estimated to be 110,000,000 tons available, centred in the Tchiaturi region. In the known coal fields there are 900,000,000 tons available in Tkerboceli and Guelati, while other deposits may have equally large amounts. A surplus of 300,000,000 bushels of grain in the Omsk district, Siberia, gave new impetus to navigation through the Siberian Ocean to and from Europe, and hydrographical researches are again in progress. It is planned to stimulate ocean traffic to Siberia by means of a great depot to be established on the west coast of Nova Zembla where can be harbored freight barges to await favorable ice conditions in Kara Sea during the short summer season. War conditions have directed special attention to little-known Siberia. This gives special importance to Ivan Lind's memoir on the economical geography of western Siberia, published in *Ymer*, 1919.

EUROPE. Geographical work in 1919 was practically confined to researches bearing on ethnographical problems, which element was to be an essential factor in connection with the boundaries fixed for future European nations by the Peace Conference. Fuel shortages in France caused intensive search for coal fields capable of exploitation. One was traced for 12 miles extending southeastward from Mons, near Lyons. Although the coal is from 1000 to 2300 feet below the surface its profitable working is expected. Commercial resuscitation is to be advanced in France, through the division of the country into 16 economic districts with regional capitals. It is worthy of note that in 1918 the distinguished geographer, Gen. Jules Shokalsky, in Petrograd, had funds allotted and force assigned for the preparation of a second and enlarged edition of the *Geographical Gazetteer of Russia*.

NORTH AMERICA. *Canada.* Geographical explorations of the enormous extent of unknown Canada are, in general, the outcome of parties of the Canadian Geological Survey engaged in the investigation of areas that promise to be of economic importance. Among these the more in-

teresting reports are the following: By McLearn, Smoky River, Alberta; by Doeling, Natural gas; by Macoum, Biological investigation of upper Athabasca and Shovel Pass regions; and by Anderson, the mammalist expert of the Canadian Arctic Expedition (1913-16), Wild life sanctuaries in Saskatchewan and Alberta. In connection with geological researches James White sums up the fuel resources of western Canada. He puts the actual coal reserves at 412,616,000,000 metric tons, of which fifteen-sixteenths are lignite or sub-bituminous. The Alberta field contains 87 per cent of all coal in Canada. Illustrative of colonization in Northern Canada and of facility of travel by water, may be mentioned the reconnaissance of F. H. Kitto who, traveling chiefly by canoe, made a journey from McMurray, junction of the Athabasca and Clearwater, across North Alberta, Saskatchewan, and Manitoba to Port Nelson, Hudson Bay. Efforts by private parties to survey by airplane the forests of Labrador have been attempted in 1919. Dr. C. D. Walcott, Secretary of the Smithsonian Institution, continued in 1918 his earlier researches of the geological structure of the upper Bow Valley and the headwaters of Cascade River.

UNITED STATES. The most important work of geographical import in the United States has been the continuance of the invaluable researches conducted by the Geological Survey, under George Otis Smith, which mark an epoch in this age. The Survey investigations of greatest economic value are as follows: The discovery of new deposits and the tabulation of known mineral resources of the country—especially of iron, manganese, tungsten, quicksilver, potash, nitrates, gas and oil; measurement of ground-water resources and stream-flow; researches in possible replacement of coal-fuel by water-power; and classification of public lands as to mineral contents. In the Virgin group the Survey made geological reconnaissance of St. Croix, St. John, and St. Thomas.

Of special interest are the extensions in researches covering the prehistoric natives of the country, carried on by the Bureau of American Ethnology in its work of excavating and repairing the stone-age monuments in the Southwest. Continuing his exploration of the castles and towers in Southwest Colorado and Southeast Utah, Fewkes discovered two new towers in McLean basin which apparently antedate the pueblo and cliff dwellings. The most remarkable of these remains, called the first American apartment house, the Aztec Spring, Montezuma Valley, ruin has been presented by Mr. Van Kleeck to the National Park Service. Its base of 300 square feet area, its hundreds of rooms, its massive walls of dressed sandstone and its large cedar posts in the remains of this communal building, indicate that the men of the stone age were equally skilled in architecture and in transportation. Among valuable resources discovered through war researches should be mentioned the wonderful extension of phosphate lands in Florida which, now recognized as one of our greatest natural assets, supply more than half the world's supply.

SOUTH AMERICA. A coöperative investigation of the botany of Ecuador is in progress by the United States National Museum, the New York Botanical Garden, and the Gray Herbarium of Harvard University. Under J. N. Rose (1918)

a very large collection was made, including about 6000 botanical specimens, covering several sections across the western Andes to the interior Andean valley and down from San Antonio to Loja. The U. S. National Museum, by P. A. Means, made (1917-18) archaeological investigations in Peru and Bolivia. The least known places in Peru—Maranga and Pando—are Inca ruins of interest, pyramids and palaces. Bolivian archaeology was studied principally at La Paz. Under charge of W. Beebe a tropical expert, the N. Y. Zoological Society has established a tropical research station in British Guiana, at Katabo, the junction of the Cutuyi and Mazuruni rivers. Its researches are to pertain to the evolution, adaptation and survival of various forms of tropical life.

MISCELLANEOUS. The expedition sent by the Smithsonian Institution to Borneo and Celebes (1916-18), under H. C. Raven, was most successful in its field work. The main collection includes about 1500 mammals, 2800 birds, and a fine series of ethnological specimens. All were from regions not before represented in the National Museum. Photographs of tombs and images illustrate the art of prehistoric races of these countries. Dr. Kaudern, of Sweden, explored the northeastern peninsula of Celebes, and the central parts from Paloe to Koewali. Forestal researches were made by D. E. Hutchins of the Kauri woodlands of New Zealand. In the Waipoua forest northwest of Auckland, an area of about 100 square miles, were noted two trees, probably the largest in the world. Each contained 296,000 superficial feet of sawable lumber, claimed to be double the amount of the largest known of the California big trees. An account is given by Dr. Basedono of his exploration (1916) of northwestern Australia. His journey from Derby to Napier rivers and the Peterson ranges throws light on physical conditions of the enormous semi-desert of central Australia, which has been estimated to have an area of approximately 3,000,000 square miles. While search for tungsten and other ores was fruitless, he obtained much information as to the fauna, flora, and also as to the natives between Ord and Fitzroy rivers. At the request of the Dominican government, to ascertain the extent of its resources, a geological survey of San Domingo has been made by T. W. Vaughan, U. S. Geological Survey. Under special orders, Lieut.-Col. Townsend Whalen with two companies of regular infantry has explored the country to the east of Panama. The reconnaissance covered the territory between Colon and the old harbor of Nombre de Dios, and from the sea inward to the headwaters of the Chagres River. It proved to be an uninhabited, rough, hilly country, covered by the densest tropical vegetation. The Rio Grande dwindles into a very short, unimportant stream while the Rio Piedras proved to be of great length. See **POLAR RESEARCH.**

EXPORTS, AGRICULTURAL. See **AGRICULTURE.**

EXPOSITIONS. There were no great international expositions held during the year; but there were a large and increasing number of trade fairs held, of which the more important are mentioned below.

The Grand Central Palace in New York City (*YEAR BOOK* for 1918 p. 198) was taken over in October by a corporation for the purpose of establishing an International Exposition of In-

dustries to include a series of expositions such as the International Machinery and Mining Industries Exposition, Municipal Equipment Exposition, Farm Tractor and Implement Exchange, Hardware and Housefurnishings Exchange, and Factory Appliances Exposition, and at which it is planned to exhibit and sell manufactured American products here and abroad. The purpose of this enterprise to extend American commerce in foreign countries and to import foreign goods to America through the medium of an International Exposition of Industries is founded on a thoroughly efficient organization plan in the hands of capable executives.

The fifth British Industries Fair was held in London during February 24th-March 7th, and there were 570 exhibits as follows: Glass and pottery, 114; paper, printing, and stationery, 130; fancy goods, 128; and toys, 198, all of British manufacture. The successful production in Great Britain of articles previously manufactured abroad was most satisfactorily demonstrated. The British Science Guild held a British Scientific Products Exhibition in London from July 3d to August 5th. The object in view was to illustrate recent progress in British science and invention and to help the establishment and development of new British industries. The exhibition was divided into the following sections: Agriculture, aircraft, chemistry, education, electrical appliances, engineering, fuels, medicine and surgery, metallurgy, paper (illustration and typography), physics, and textiles. A Key Industries Exhibition was held in London during October 8th-18th, under the auspices of the Tariff Reform League, to show what Great Britain had accomplished during the war in manufacturing essential commodities which had formerly been almost completely controlled by Germany. The term "key industry" is applied to those industries which are of vital importance since upon their existence that of other and greater industries depends, and includes such articles as dyes, magnetos, optical-glass, tungsten, manganese, lead, graphite, spelter, rubber, and antimony. All these essential key products, the raw materials of which are largely produced in the British Empire, had been manufactured in Germany before the war, and resold to Great Britain.

In November there was held in London a Shipping and Engineering Exhibition at which the exhibits represented the advance which Great Britain and other countries have made, largely during the period of the war, in many branches of scientific knowledge and attainment in matters directly connected with engineering, although not wholly confined to those departments of industry. The Federation of British Industries organized an exhibition of strictly British-made goods that was held in Athens, Greece, during October for the purpose of soliciting trade from the Eastern markets in Asia Minor, Turkey, and to a great extent in the Balkans and the Levant. The success that attended the British Industries Fairs held in London and in Glasgow has led Birmingham to organize a similar exposition for 1920. At this fair, which will be under the official organization of the municipality and Chamber of Commerce of Birmingham, exhibits are to be restricted to the hardware and kindred trades, such restriction being thought necessary to prevent overlapping as between fairs and to enable buyers to find

similar articles displayed together. Much interest has been aroused in British trade circles by the proposal to hold in London during the summer of 1921 a great exhibition of the manufactures and products of the British Empire, with the object of promoting imperial trade. The scheme, which has received the support of the colonial governments, has been submitted to the British government for official approval.

In France the fourth International Sample Fair of Lyon was held during March 1st-15th. There were 4700 different exhibits shown, valued at nearly \$4,000,000. The United States allotted \$2500 for rented space and 618 (next to France the largest number) of the exhibitors were from that country. Although larger than previous fairs, the space was insufficient and as the number of visitors was so great it was decided to hold a fair in the spring from March 1st to March 15th, to include jewelry, horology, wools and cotton, hats, boots, leather goods, motor cars, electric goods and chemical products. A second fair, to be held from October 1st to October 15th, will include exhibits from metallurgy, industrial construction, agricultural machinery, and foreign and colonial exhibits. A third Sample Fair was held in Bordeaux during May 16th-31st. The articles shown were largely of a character suitable for export to the French Colonial possessions, and a number of American exhibits were transferred from Lyon to this fair.

The third Swiss Sample Fair was held in Basel from April 25th to May 8th, and at it only firms that were purely Swiss were allowed to exhibit. Over 1380 firms were represented as compared with 831 in 1917 and 990 in 1918. The business transacted amounted to about \$14,000,000, an increase of \$5,000,000 over last year. In addition to the foregoing a French Sample Fair was held in Basel in the buildings of the Swiss Sample Fair during September 5th-21st. The exhibits were distributed among the following groups: 1, food; 2, furniture; 3, fashions and clothing industry; 4, articles for offices, stationery; 5, graphic arts; 6, articles for the household, lighting, heating; 7, watch trade and jewelry; 8, toys and small wares; 9, perfumery and pharmacy, and 10, sundries. Also a Belgian Sample Fair was held in Basel during October 15th-31st in which only goods manufactured entirely or in part in Belgium were on exhibition.

The third Netherlands Annual Fair was held in Utrecht from February 24th to March 8th. The number of exhibitors was 1225 as against 690 in 1917. It is proposed to make the Utrecht Exhibition a permanent affair and plans for buildings to cost about \$804,000 have been prepared. The fair in 1920 will be held from February 23d to March 6th. The first Aëronautical Exposition was held in Amsterdam during August and September. The exhibits were classified in 17 groups including all kinds of aëroplanes, motors, and the special articles used in the equipment of the various planes.

The first of the Import Fairs to be held in Frankfort, Germany, was opened on October 1st. Nearly 2000 firms had exhibits, among which were American, British, and French concerns. Special preference was given to articles urgently needed by the Germans and particularly such articles as can be produced in Germany, provided raw materials can be had. The Leipsic

fair was opened on September 1st and the conspicuous feature was the absence of substitutes upon which German industry was so dependent during the war period; also the exhibits indicated that the German manufacturers were able to draw upon the home stocks of raw materials which had been reserved for the war industries and on the other hand raw materials coming in from abroad were being rapidly absorbed by the industries which had been wanting them.

The Scania Fair was held in Malmo, Sweden, during June 30th-July 6th and its exhibits were confined exclusively to articles of Swedish manufacture, and there were 750 exhibits. The second Swedish Industries Fair was held in Goteborg during July 7th-13th, and the number of exhibitors was 1057 as against 544 in 1918, and the attendance was 36,615. A Norwegian-American Exhibition was held in Christiania, Norway, during September 10th-24th.

South America and especially Brazil, have held various expositions during the year. In Rio de Janeiro there was held on July 12th, the first exposition of cereals, including cereals of all sorts, vegetables, horticulture, floriculture, ornamental plants, seeds, bulbs, agricultural and gardening implements and accessories; on August 30th, an exposition of aviculture and domestic animals, promoted by the Brazilian Society of Aviculture; and on September 20th, the second great annual fair, organized by and under the auspices of the Rio de Janeiro municipal government. On Jan. 24, 1920, the fifth large Exposition Fair of fruits, vegetables, flowers, and agricultural industries will be held.

The first annual Commercial Fair in which allied and neutral countries will be permitted to exhibit is announced to be held in Brussels, Belgium, during Apr. 4-21, 1920.

The South Australian Chamber of Manufactures at Adelaide announces that it is preparing to hold at Adelaide, from March 26th to May 22, 1920, an All-Australian Peace Exhibition of manufactures, products, arts, and industries.

The first Spanish Sample Fair will be held in Barcelona during May 15-30, 1920.

It was reported in November that the Tokio municipal authorities had decided to commemorate the restoration of peace in a substantial form by holding a grand exposition at an outlay of \$2,000,000, or \$2,500,000 in the spring of 1920.

An International Tea Congress and Exposition is announced to be held in Batavia, Java, early in 1921.

Plans for an Industrial Exposition to be held in Bombay, India, in 1922 have been prepared.

The Minister of Commerce of France has promulgated a decree providing for the organization of an International Exposition of Decorative Arts to be held in Paris during the summer of 1922.

Preliminary steps have been taken in Detroit, Mich., in a movement to hold a world's peace exposition in 1922 or 1923.

EXTENSION WORK. See AGRICULTURAL EXTENSION WORK.

FAILURES. See FINANCIAL REVIEW.

FALKLAND ISLANDS. Crown colony of the United Kingdom, constituting a group of islands in the South Atlantic, composed of East Falkland, with an area of 3000 square

miles; West Falkland, with an area of 2300 square miles; and about a hundred small islands with an aggregate area of 1200 square miles; also the dependency of South Georgia, a group of islands lying to the south, with an area of about 1000 square miles, making a total of 6500 square miles. Among other dependencies are the South Shetlands, the South Orkneys, the Sandwich group and Graham's land. The estimated population in 1917, including the whaling station of South Georgia, was 3241, with a birth rate (1917) of 18.82 and a death rate of 4.93 per 1000. The chief town is Stanley, with an estimated population of 950 inhabitants.

Sheep farming is the leading industry, having an estimated pasturage area of 2,325,000 acres in 1919. It is estimated that in 1919 there were slightly over 800,000 sheep. Whaling is successful, the catch in recent years averaging about 8000 (1918-19). The total value of this industry was over £1,500,000 in 1919. In South Georgia there were about 3000 seals killed. In 1917 71 vessels, of 133,132 tons, entered. The leading exports in order of their importance, for 1919, were: Wool, (about £300,000); whale produce, tallow, and skins and hides. The chief imports similarly arranged in order of their importance were: Groceries, timber, coal, wearing apparel, haberdashery, and hardware. In 1917, the financial status of the country was, in pounds sterling: Total revenue, 45,588; total expenditure, 29,687; imports, 1,256,906; exports, 1,870,903; with no public debt. The Protectorate was established to provide, at Stanley, a coaling station for vessels rounding Cape Horn and to protect the whale fisheries. The governor in 1919 was W. Douglas Young, who was assisted by an executive council and a legislative council. See POLAR RESEARCH, ANTARCTIC.

FAMILY SOCIAL WORK. See CHARITIES.

FARLOW, DR. WILLIAM GILSON. Botanist, died at Cambridge, Mass., June 3. He was born at Boston, Mass., Dec. 17, 1844; graduated at Harvard in 1866; studied medicine, but later devoted himself to botany and passed several years in Europe in research. He became assistant professor in botany at Harvard in 1874, and from 1879 to the time of his death was professor of cryptogamic botany there. He was officer and member of the leading scientific societies. He wrote *The Black Knot* (1876); *Diseases of Olive and Orange Trees* (1876); *The Gymnosporangia or Cedar*; *Apples of the United States* (1880); *Marine Algae of New England* (1881); *The Potato Rot*; *Index of Fungi*, etc.

FARM BUREAUS. See AGRICULTURAL EXTENSION WORK.

FARM DEMONSTRATIONS. See AGRICULTURAL EXTENSION WORK.

FARMERS' INSTITUTES. See AGRICULTURAL EXTENSION WORK.

FARMERS' NATIONAL CONFERENCE. See INDUSTRIAL RECONSTRUCTION.

FARM LABOR. See AGRICULTURE.

FARM LAND. See AGRICULTURE and SOILS.

FARM MANAGEMENT. See AGRICULTURE.

FEDERAL COUNCIL OF THE CHURCHES OF CHRIST IN AMERICA. A federal Council of 31 constituent denominations, including 140,000 local churches, with more than 18,000,000 communicants, representing something like 50,000,000 of the people, for the pur-

pose of coördinating the service that the separate denominations render the country. It is an official body through which the Protestant Evangelical churches of the nation speak and work together in matters of common interest and purpose. Besides national offices in New York and Washington, the Council operates by means of eight permanent commissions: Commission on Interchurch Federation, Commission on Evangelism, Commission on the Church and Social Service, Commission on Temperance, Commission on Church and Country Life, Commission on Christian Education, Commission on International Justice and Goodwill, Commission on Relations with the Orient. The Commission on Interchurch Federation reports the formation of five new city federations: Norfolk, Va., Omaha, Neb., St. Paul, Minn., Youngstown, Ohio, and Akron, Ohio. The Commission on Church and Social Service did valuable work in army and navy centres, industrial centres and negro centres. It coöperated with the Red Cross in this work. The Commission on Temperance and the Field Secretary have spent much time and energy in the distribution of prohibition literature, writing and printing of advertisements and posters, and the producing of prohibition moving pictures. This Commission coöperates with 16 other prohibition societies. The Commission on Church and Country Life has been making a nation-wide survey of religious conditions in rural communities. The Commission on Relations with the Orient started a movement to urge Congress to introduce an amendment to the Constitution to the effect that Chinese and Japanese may be admitted to citizenship in the United States, but at the same time to in no way affect the Chinese Exclusion Law, and other immigration laws.

A special Commission was formed at the beginning of the war to be known as the General War-Time Commission of the Churches to coördinate the war work of the various Protestant denominations. It has closed its work except for the contemplated issuing of a report and biography of the part played by the churches in the war.

The Commission on Relations with France and Belgium is coördinating the relief and reconstruction work of several of the denominations in the recent war area, and contemplates the raising and expenditure of \$3,000,000 during the current year. Work of unification in the missionary field is carried on by the Home Missions Council, which was organized in 1908. Permanent headquarters were not opened however until March, 1918, and an Executive Secretary was secured at that time. The Department of Religious Publicity issues the monthly magazine, *The Federal Council Bulletin*, and furnishes general religious news to the secular and the religious press. The national offices of the council are in New York city, and the general secretary is the Rev. Charles S. Macfarland.

FEDERAL HOUSING BUREAU. See HOUSING.

FEDERAL TERRITORY. A territory governed by the Commonwealth of Australia, situated within the state of New South Wales. The area is about 900 square miles, and the population was estimated in 1919 at about 3000. It was acquired by the Commonwealth in 1910 from New South Wales at the site of the perma-

nent capital of the Commonwealth, which, under the name of Canberra, was founded in 1913.

FEDERATED MALAY STATES. These states are composed of Perak, 7800 square miles, population 494,057, capital Taiping; Selangor, 3156 square miles, with a population of 294,035, capital, Kuala Lumpur; Negri Sembilan, 2550 square miles, pop. 130,199, capital, Seremban; Pahang, 14,000 square miles, pop. 118,708, capital, Kuala Lipis; making a total of 1,036,999, of whom 420,840 were Malays, 433,244 Chinese, and 172,465 natives of India. In 1917 there were a number of British schools assisted or maintained by the government, with an average enrollment of 6056 boys and 1526 girls, and an average attendance of 5779 and 1422 respectively.

The revenue of the states in 1917 was £7,647,872, and the expenditure £4,769,187. The leading items of revenue in 1917, in the order of their importance, were as follows: Licenses, customs, railways, land revenue, fees of court or office, interest, municipal; and of expenditures, railways, public works, miscellaneous services, personal emoluments, other charges, and interest on advances. Public debt 1917: £1,750,000.

The staple cultivations of the Federated Malay States are coconuts, rubber, tapioca, gambier, rice, sugar, pepper, and nipa palms. The chief industrial enterprises are the cultivation of rubber and tin mining. Various irrigation works have supplied rice land and drinking water. Many excellent timbers are to be found in the forests, besides gutta percha, oils, resins and canes. In 1917, 713,540 tons of timber of all kinds were taken from the forests, and the gross revenue of the forest department for that year amounted to £87,120.

Among the leading articles of import for 1917, arranged in the order of their importance, were: rice, opium, tobacco, cotton goods, sugar, condensed milk, spirits, iron ware, and machinery. The chief exports arranged in similar order: cultivated rubber, copra, rice, tapioca, coffee, and tin. Shipping, in 1917, excluding native trade: entered 3481 vessels of 1,395,211 tons; cleared 3492 vessels, of 1,395,073 tons.

The government has the construction and operation of railway systems of the whole peninsula south of the Siamese boundary, including the railway on Singapore Island, under its control. The section linking up the southern Siamese railway system, and the Perlis-Siam section was completed and opened in July, 1918. The total mileage open for traffic, including leased lines, was 930 miles in 1917. The high commissioner at the beginning of 1919 was Sir A. H. Young.

FEDERATION OF LABOR, AMERICAN. See LABOR, AMERICAN FEDERATION OF.

FEDERATION OF NEO-MALTHUSIAN LEAGUES. See BIRTH CONTROL.

FELL, DAVID NEWLIN. Judge, died in Philadelphia, Pa., September 22. He was born at Buckingham, Pa., Nov. 4, 1840, and served with the Pennsylvania volunteers during the Civil War. He practiced law in Philadelphia until 1877 when he became a judge of the Court of Common Pleas (1877-94). From 1894 to the time of his death he was a justice of the Supreme Court of Pennsylvania and was Chief Justice from 1910. In politics he was a Republican.

FENCING. The fencers of Columbia Uni-

versity in 1919 for the second time in succession won the intercollegiate tournament, with 27 victories and 9 defeats. The U. S. Naval Academy finished second with 25 victories and 11 defeats, and Harvard third with 20 victories and 16 defeats. The contests for individual honors resulted in a tie between Lieut. Millard J. Bloomer of Columbia and E. R. Gay of Harvard, each of whom won 11 bouts and lost 1. In an extra bout to decide the supremacy Bloomer was the victor by 4 points to 2. The New York Military Academy captured the interscholastic title by defeating Paterson, N. J. High School by 5 bouts to 4.

The championships of the Amateur Fencers' League were resumed for the first time since 1917. In the final bouts of the senior team foils the New York A.C. defeated the West Point Officers by 5 bouts to 2. The individual foils and sabre championships resulted as follows: Foils won by Sherman Hall, New York A.C.; duelling swords, won by W. H. Russell, Boston Sword Club; sabres won by A. S. Lyons, Fencers' Club.

In dual meets during the year Columbia defeated Pennsylvania, 6-3, and 8-1; Harvard 7-2 and Yale 7-2 and was defeated by the U. S. Naval Academy 11-2. Yale defeated Harvard 5-4 and Pennsylvania 5-4 and was defeated by Columbia 2-7 and by U. S. Naval Academy 1-8.

FERRIERITE. See MINERALOGY.

FERTILIZERS. The year 1919 was one of uncertain and usually inadequate supply and widely fluctuating but generally high prices of fertilizers both in the United States and abroad. Fertilizer statistics during recent years have been very incomplete and unsatisfactory, but enough is known to make it clear that production and consumption have not kept pace with the needs of good farm practice.

At the close of the war the situation was reported by the commission appointed by the Secretary of Agriculture to study agricultural conditions in Europe to be especially critical in Great Britain, France, and Italy. In Great Britain it was relieved to some extent by utilization of by-products from munitions-making and other manufacturing industries, but was still so serious that a British commission appointed to consider post-war readjustments urged a vigorous educational campaign for increased use of fertilizers and the utilization of the excess production of sulphuric acid in the manufacture of superphosphates. The Prime Minister proposed government control, supply, and, if necessary, manufacture of fertilizers. The situation seriously menaced French agriculture and was the cause of grave anxiety in Italy, which at the close of the war was securing only about 16 per cent of the normal supply of phosphate and much less than the normal supply of nitrogen compounds, with the result that production, especially of breadstuffs, was greatly reduced. It seemed clear that all of these countries for some time to come would need to import large quantities of fertilizers, especially phosphates. Germany appears to have taken prompt steps to meet the situation, and is reported to have produced 520,000 tons of fertilizer nitrogen, phosphoric acid, and potash in 1918-19 as compared with 220,000 tons in 1917-18. The production of synthetic nitrogen compounds had been so developed in Germany during the war that it is thought that the combined produc-

tion of these compounds and ammonium sulphate in that country was sufficient for its normal needs. Reports indicate that the need for fertilizers has not been fully met in other countries, as for example, in South Africa, Australia, New Zealand, and even in Egypt, with its annual inundations of six tons per acre of fertile Nile silt. The outstanding need here appears to be for nitrogen, with phosphate second in importance. In the other countries the prime need appears to be for phosphates. Diligent search is being made, with some success, in these countries for workable deposits of phosphates.

A distinct advance in the direction of efficient use of fertilizers was made during the year through the advocacy by fertilizer manufacturers of simplified and high-grade fertilizer mixtures. The advantage of this over the use of almost endless and meaningless "brands" and low-grade mixtures heretofore followed is obvious.

A survey of the fertilizer industry by the Fertilizer Control of the Department of Agriculture showed that three-fourths to seven-eighths of the mixed fertilizers sold to farmers during 1917 and 1918 was so-called "filler" which usually has little or no value as fertilizer. While it is recognized that a certain amount of filler is not only legitimate but necessary in mixed fertilizers, it is obviously bad economy to use low-grade fertilizers in which the amount of filler is unnecessarily large. The manufacturers of fertilizers are therefore rendering a real service in encouraging the use of high-grade fertilizers and endeavoring to limit the use of filler.

There was a distinct revival during the year of advocacy of buying unmixed fertilizer materials and using them separately or in such mixtures as can be readily made on the farm, but some difficulty was reported in obtaining unmixed materials from dealers in fertilizers at prices which would make the practice advantageous.

Under authority of the Food Control Act the Department of Agriculture continued, through a license system, to exercise a certain measure of control of the fertilizer business, endeavoring especially to equalize and stabilize prices and to maintain a fair price scale.

Considerable attention was given during the year to fertilizer legislation, particularly with reference to securing greater uniformity in State legislation on the subject. A Federal law (H. R. 15,327, 65th Congress, 3d Session) was introduced in Congress during the last session but was not acted upon. Forty-three States and Porto Rico now have fertilizer laws. Montana, Nebraska, Nevada, New Mexico, and Wyoming, of which the combined consumption of fertilizers was about 3500 tons in 1918, have no laws.

PHOSPHORIC ACID. Evidence continued to multiply that phosphoric acid is the element of plant food most widely and urgently needed. Soils appear to be more generally deficient in available phosphoric acid than in other necessary fertilizing constituents. Fortunately the world has abundant supplies of phosphates. Unfortunately they have not recently been made available as rapidly as was desirable. It is estimated that the world's shortage of phosphates during the war amounted to 15,000,000 tons; the United States exports fell off 5,000,000 tons and became less than those of Tunis. The out-

put of the United States in 1918 was nearly 2,500,000 tons, somewhat less than in 1917. The indications are that the 1919 output was no greater than that of the previous year. This is attributed to shortage of labor and transportation.

There was a general but widely fluctuating rise in price of acid phosphate during 1919, the fall prices being much higher than was anticipated. It was suggested both in England and in this country that the excess production of sulphuric acid developed during the war might be used to manufacture acid phosphate and thus increase the supply and lower the price. The war experience emphasized very strongly the importance of an abundant supply of moderate priced available phosphoric acid, particularly as a means of increasing the production of cereals and grasses. The manufacture of acid phosphate appears to be the best means yet devised for supplying this need. The use of fine-ground raw rock phosphate, composting the rock phosphate with sulphur, manure, and soil, and other means that have been suggested have not yet been developed to a degree that warrant their substitution in any large way for the use of acid phosphate.

NITROGEN. Like phosphoric acid, nitrogen is widely needed by soils, and the sources from which it may be drawn are practically inexhaustible. The means of utilizing these resources have been perfected rapidly. The preparation of synthetic nitrogen compounds from the nitrogen of the air received a great impetus during the war. It is stated that at the end of the war Germany was capable of a production in excess of domestic needs. The world's productive capacity during 1919 is estimated at 467,000 tons, of which the United States was capable of producing 100,000 tons, mostly (91,000 tons) cyanamid. The only one of the various plants which the United States undertook to establish during the war for the production of nitrogen compounds for munitions and agricultural purposes which had developed quantity production at the close of the war, namely, that at Muscle Shoals, Ala., had an estimated capacity of 110,000 tons of ammonium nitrate per year.

The possibility of the production of synthetic nitrogen compounds in quantity sufficient to meet ordinary and even emergency needs has been settled affirmatively. There is also no limit to the possible acquisition of the nitrogen of the air through symbiotic fixation by leguminous plants and nonsymbiotic fixation by soil bacteria. This is now the largest means of replenishing and maintaining the nitrogen supply of the soil. Lipman estimates that of the 9,000,000 tons of nitrogen lost annually from the 300,000,000 acres of cultivated land in the United States, there are now available from leguminous plants 1,750,000 tons, from nonsymbiotic fixation 1,500,000 tons, from manure 1,750,000 tons, from atmospheric precipitation 750,000 tons, and from commercial fertilizers 200,000 tons, leaving a deficit of a little over 3,000,000 tons not supplied from any source. It will be observed that commercial fertilizers supply a comparatively small part of the nitrogen needed.

The Department of Agriculture continued during 1919 to sell nitrate of soda to farmers through county agricultural agents on the same

plan as in 1918. The price was \$81 per short ton cash f. o. b. at loading point, as compared with \$75.50 per ton in 1918. There was available for distribution during the year about 150,000 tons of nitrate, 110,000 tons released by the War Department and about 40,000 tons carried over by the Department of Agriculture from the preceding year.

POTASH. Notwithstanding a general world shortage of potash, there was reported to be in storage in the United States at the beginning of 1919 60,000 tons of potash salts, equivalent to 15,000 tons of pure potash. The War Trade Board announced at that time that there was no prospect that Alsatian potash would be available for export before June 1, 1919, and that American fertilizer manufacturers and farmers would probably have to depend during 1919 upon the domestic supply.

The domestic production of potash in the United States in 1918 was, according to the Geological Survey, 52,135 short tons of actual potash (K_2O). The estimated productive capacity of established plants or other actually developed sources was 100,000 tons distributed as follows: From natural brines, 39,255 tons; alunite, 2619 tons; cement mill dust, 1429 tons; kelp, 4292 tons; molasses distillery waste, 3322 tons; Steffens waste water 761 tons; wood ashes, 365 tons; other sources, 92 tons.

The results of the work of the Department of Agriculture during the year on extraction of potash and other products (iodin, salt, ammonia, and bleaching carbon) from kelp were such as to lead to the conclusion that kelp can be made a profitable source of potash and other products, justifying the establishment of a substantial kelp potash industry. Several commercial plants engaged in the industry, however, went out of business during the year, and it is the opinion of some who have investigated the matter that the saline lakes are likely to prove the greatest source of domestic potash for the next three or four years, the continuance of the industry depending upon the price that can be obtained for the product.

Complaint of injury to crops alleged to be due to use of potash salts was investigated during the year. The injury appears to have been limited to potash salts from Searles Lake, which contained a relatively high percentage of borax, and was most pronounced where potash fertilizers were used in relatively large quantity on dry soils. As a result the Department of Agriculture made a ruling to the effect that the amount of borax in potash salts should be limited to 0.5 per cent and in mixed fertilizers to two pounds per ton.

Recovery of blast furnace and cement mill dust as a source of potash promises to develop, particularly since it has been shown that the recently improved Cottrell electrical dust precipitation process can be profitably used with potash at \$1 per unit. The recovery of this material continues in England, where it has been shown that untreated blast furnace dust gives good results as fertilizer for potatoes and mangolds when applied well in advance of the planting of the crop.

The indications are that the war-time production of potash in Germany was better maintained than was generally supposed. The prospect is that abundant supplies of potash will ultimately be available either from the German

mines or from the large and very rich Alsatian deposits.

Moreover, the war experience has taught a more conservative use of potash. It has been learned that many soils do not need potash; that manure and other supplementary sources of potash may temporarily replace potash salts; that soda may to a considerable extent reduce the amount of potash needed.

SULPHUR, MANGANESE, LIME. Further evidence was collected during the year that many soils are deficient in sulphur and are made more productive for many crops by application of sulphur or sulphur compounds. Additional evidence was also secured indicating that manganese is present in many soils in sufficient quantity to play an important rôle in bacterial and plant growth, excessive amounts inhibiting or retarding growth and small amounts stimulating it. It has been suggested that part of the beneficial effect of basic slag may be due to the manganese normally present in the slag.

In view of the well established fact that the need of liming is widespread and that its effectiveness depends largely upon the fineness of the material used, a number of the experiment stations, particularly in the Southeastern States, attempted to reach an agreement as to the degree of fineness and the method of application which should be generally recommended. Their general recommendation was that all the material should pass a 10-mesh sieve and should be used at rates of one to two tons per acre in a rotation of not more than five years, preferably containing legumes, with phosphoric acid and potash added when needed. Lime grinding under State auspices was developed in Maryland, Virginia, and North Carolina during the year.

There was a revival of interest in the use of marl both as a lime fertilizer and as a source of potash.

FERTILIZER FORMULAS. Commonly accepted methods of calculating fertilizer formulas were attacked during the year on the ground that more emphasis should be placed upon plant requirements and less upon soil deficiencies, the required fertilizer formula being determined by subtracting from a full ration of chemicals sufficient for the expected crop the amounts of the fertilizing constituents that the soil may be expected to furnish as shown by long-continued field experiments. The practical result of this procedure is to eliminate nitrogen as a rule from the fertilizer, greatly reduce phosphoric acid, and increase the relative proportion of potash. In fact, a general fertilizer formula arrived at in this way is 1 phosphoric acid to 2.08 potash. See **CHEMISTRY, INDUSTRIAL**.

FICTION. See **LITERATURE, ENGLISH AND AMERICAN**, and articles on **FRENCH, GERMAN, SCANDINAVIAN** and **SPANISH LITERATURES**.

FIELD, ROSWELL MARTIN. Author, died at Morristown, N. J., January 10. He was born at St. Louis, Mo., September, 1851, and graduated at the University of Missouri. He was engaged in newspaper work in San Francisco, St. Louis, New York and other cities and he was the author of the following: *In Sunflower Land* (1892); *Echoes from the Sabine Farm* (1891); *The Passing of Mother's Portrait* (1901); *The Romance of an Old Fool* (1902); *The Bondage of Ballinger* (1903); *Little Miss Dee* (1904); *Madeline* (1906).

FIJI ISLANDS. A group of islands in the southern Pacific numbering about 225, of which about 80 are inhabited, and constituting a British Crown Colony. The main island is Viti Levu on which the capital, Suva, is situated (area 4112 square miles). Other islands of importance are Vanua Levu (2432); Tavuni (217); Kadavu (124); Koro (587); Gau, Ovalau, and the Yasawas and Lau groups. Total area including the island of Rotuma (a dependency since 1880), 7435 square miles. Population (Jan. 1, 1919, estimated) 165,991 of whom 91,013 were Fijians and 61,153 Indians. The Europeans in 1916 were 4552. The chief crops were sugar, copra, pineapples, and other fruits, which were also the chief exports. The total trade for 1917 was valued at \$14,987,890 of which imports were \$4,922,015 and exports \$10,065,875. The revenue in 1917 was \$1,630,590; expenditure, \$1,463,445. The chief product has been sugar which at this time formed about 71 per cent of the total exports. The rubber industry recently started promised to become one of the most important in the islands. After the outbreak of the war foreign trade was diverted from its previous channels. The trade with New Zealand greatly increased, especially in respect to exports of sugar, and the same was true of trade with Australia. On the other hand there was a decrease in exports to the United Kingdom while the exports to the United States increased owing largely to the diversion of the copra trade from London to San Francisco. In 1919 the main problem in Fiji was that of an adequate labor supply. The larger part of manual labor had been performed by indentured Indians but lately the system of indenture has been forbidden, the last ship bearing indentured Indians having been admitted in 1916. In the three preceding years the number of indentured Indians decreased from 10,080 to 7232. There is regular steam communication with Australia, New Zealand, Tonga, Samoa, Honolulu and Canada. Tonnage entered and cleared in 1917, 712,048 of which 676,029 was British. The government is under a governor appointed by the crown aided by an executive council, and a legislative council of which the governor is president. Governor of Fiji and High Commissioner for the West Pacific at the beginning of 1918, C. H. Rodwell.

FILTRATION. See **WATERWORKS AND WATER PURIFICATION**.

FINANCIAL REVIEW. For additional information to that given below the reader should consult the following topics: **AGRICULTURAL CREDIT; BANKS AND BANKING; COÖPERATION; INDUSTRIAL RECONSTRUCTION; INSURANCE; NATIONAL BANKS; PRICES; TARIFF; TAXATION; TRUSTS; and WAR FINANCE.** See also the special articles on the various countries, and the States of the United States, as well as the article **LABOR** and the references given there.

GENERAL CONDITIONS. The year 1919, from a financial and economic standpoint, was a period of enormous activity, and at the same time a period of inconsistencies and uncertainty. Prices, of commodities and on the Stock Exchange, did not follow the courses confidently predicted for them at the beginning of the year. (See **PRICES**.) In this respect the year did not differ greatly from those years in the past which have followed exhaustive wars. The real conditions which had been caused by the war were

disguised by the unusual political and economic machinery necessarily created during the conflict. The economic exhaustion of belligerent Europe was greater than had been supposed a year before, though the process of recuperation made remarkable headway. (See INDUSTRIAL RECONSTRUCTION.) High prices, which, instead of receding from their war-time peaks, climbed still farther during 1919, were accompanied by increases in outstanding paper currencies. (See BANKS AND BANKING.) It was an era of extravagant personal expenditure, owing to abnormal war profits in some cases and abnormal war wages in others. Persistent demands for increase in the pay of labor were notable throughout the year; many of these took the form of strikes, which were settled only after government intervention. (See STRIKES.) Production in America was marked by hesitancy in the early part of the year, until it was seen that the slight fall in prices was only temporary, after which there was a rapid increase. A large increase in the volume of international trade was recorded, the release of shipping from transport service being an important factor. As a consequence of Europe's large trade indebtedness to the United States, and also of a further expansion of European paper currencies, a sensational depreciation of New York exchange on European markets was a feature of the year. Extensive gold exports by the United States to South America and the Far East, accompanied by extravagant speculation on the Stock Exchange, with its consequent drain on our Federal Reserve resources, resulted in a general tightening of all money markets. The harvests of the world, although estimated as a whole to be larger than in 1918, were hardly sufficient to prevent a continuance of scarcity and famine in Europe, despite the record-breaking exports of America. As was to be expected, all former belligerent states showed a substantial reduction in public expenditures, America's disbursements (exclusive of loans to allies) decreasing from \$13,000,000,000 in 1918 to \$9,700,000,000 in 1919. Great as were its records in trade and finance, the year ended with a great number of grave problems in the economic and political fields waiting to be solved. Not the least of these was the American railroad situation, since the uncertainty as to the exact status of the roads after war-time government operation had been a depressing influence in the investment world.

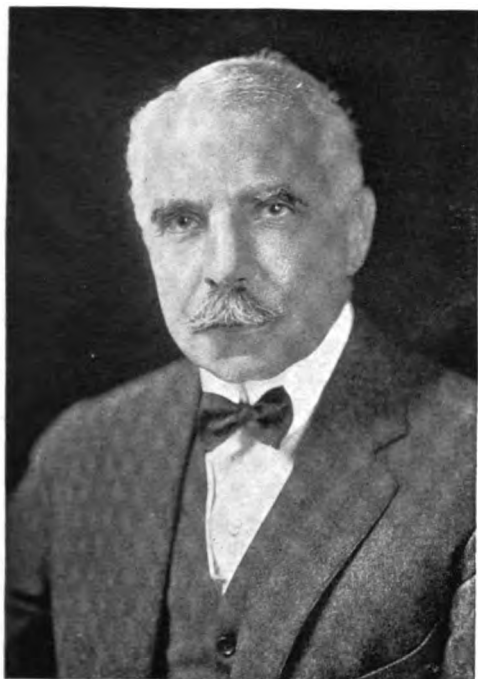
STATISTICS. The output of iron in the United States during 1919 was 29,250,000 tons, according to the *Iron Age*. This was about 9,000,000 tons less than the total for any of the three preceding years. The low monthly record for 1919 was 1,864,000 tons in October, the lowest figure since 1915. The unfilled tonnage figures of the United States Steel Corporation reached a maximum of 8,265,000 tons in December, an increase of 886,000 tons over December, 1918. The May figure of 4,282,000 tons was the lowest since May, 1915, and may be compared with the record of 12,183,000 tons in April, 1917. The total value of farm crops was approximately \$14,092,000,000, or over \$1,500,000,000 above that for the previous year. Some of the important crops were valued as follows on December 1st: Corn, \$3,934,000,000; wheat, \$2,029,000,000; oats, \$896,000,000; barley, \$200,000,000; rye, \$119,000,000; cotton, \$1,977,000,000; hay, \$2,129,000,-

000. According to the preliminary estimate published jointly by the Bureau of the Mint and the Geological Survey, American gold production for 1919 was valued at \$58,489,000, a decline of about \$10,100,000 from 1918, and actually the smallest of any year since 1897. It may be compared with \$101,035,000 in 1915. Silver production was 55,285,000 fine ounces. Total foreign trade for the calendar year approximated \$11,886,000,000, at least \$2,000,000,000 greater than the amount for 1918. Imports were about \$3,904,000,000, an increase of a little over \$9,000,000 from the preceding year; exports were estimated at \$7,922,000,000, an increase of \$1,803,000,000 over 1918. The trade balance was thus approximately four billions, as compared with three billions in 1918. Gold exports increased from \$41,070,000 in 1918 to about \$372,000,000 in 1919, owing to the lifting of the gold embargo; gold imports were \$65,620,000 as compared with \$62,043,000 in 1918. Exports of silver for the first 11 months of the year were of the total value of \$208,426,000, and imports were \$79,725,000. Bank clearings for the entire country showed an increase of 25.6 per cent over 1918, indicating the increase in volume of internal business in the country. Bank clearings outside New York increased 18.1 per cent. Railroad gross earnings for the first 11 months in the year were (for 186 roads) \$4,731,000,000 as compared with \$4,485,000,000 for the same period in 1918, an increase of 5.5 per cent. The banking resources of the national system were \$21,615,000,000 on September 12th, while loans to foreign governments amounted to about ten billions at the end of the year.

BANK CLEARINGS. Bank clearings for the entire country for the 12 months aggregated \$417,520,000,000, a gain of 25.6 per cent over 1918. Every section of the country showed an increase. The large gain over 1918 and previous years was due partly to the expansion of business and partly to the remarkable rise in price levels. The Middle States showed the greatest increase over 1918, with 29.7 per cent; the Pacific section was next with 28.3 per cent; the South increased 21.5 per cent, the Middle West 17.8 per cent, other Western States 14 per cent, and New England 13.3 per cent. The aggregate clearings of principal cities were as follows, in millions of dollars: New York, \$235,803; Chicago, \$29,686; Philadelphia, \$22,095; Boston, \$17,903; Kansas City, \$11,223; St. Louis, \$8206; San Francisco, \$7286; Pittsburgh, \$7277; Cleveland, \$5482; Detroit, \$4504; Baltimore, \$4343; Atlanta, \$3290; New Orleans, \$3170; Cincinnati, \$3131; Richmond, \$3091; Omaha, \$3058; Los Angeles, \$2339; Minneapolis, \$2267; Seattle, \$2021; Buffalo, \$1655; Portland (Ore.), \$1653; Dallas, \$1631; Denver, \$1630; Milwaukee, \$1528; Memphis, \$1128; Houston, \$1118; St. Paul, \$966; Louisville, \$928; and Fort Worth, \$900.

The bank clearings of Canada were \$16,710,000,000, an increase of 21 per cent over 1918, and about 36 per cent over 1917. The total for Montreal was \$6,252,000,000, an increase of 29 per cent; for Toronto, \$4,252,000,000, an increase of 26 per cent; for Winnipeg, \$2,317,000,000, a decrease of about 2 per cent.

The London Bankers' Clearing House figures for the period from January 1st to Dec. 6, 1919, showed an increase over the same period in 1918 of £6,317,000,000, or 31.4 per cent.



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BERNARD M. BARUCH

MEN PROMINENT IN FINANCE DURING 1919

STOCKS AND BONDS. The year 1919 brought stock market speculation such as the country had never seen before. Total transactions on the New York board were 315,983,000 shares, eclipsing the previous high records of 265,577,000 shares in 1901 and 284,016,000 shares in 1906, both of which periods were marked by enormous speculative waves. The industrial group led the trading, some industrials representing the extreme of prosperity while the rails represented the extreme of poverty. A high record of 145 million-share days, during the year was made, to be compared with 17 such days in 1918 and the previous high record of 114 in 1906. There were six two-million share days, while on no occasion during 1918 or 1917 did sales exceed two million shares. There were six two-million share days in 1916, and 11 in 1901. The highest price paid for Stock Exchange membership during 1919 was \$110,000, as compared with a high of \$65,000 in 1918 and \$70,000 in 1917.

Dullness characterized the opening days of the market in 1919, and prices were at lower levels till the beginning of the buying movement in February, a movement which progressed with only one serious setback up to the first week in November. It was an infectious movement, which forced even the conservative issues up, especially as money was comparatively easy during most of the year, the so-called Money Committee having ceased to function in January. The fever of speculation reached its peak in May, in which month every full five-hour day showed sales of over a million shares. Sharp advances in call-money rates, together with a warning against speculation by the Federal Reserve Board, and a report of deficits in legal reserves for the first time since the organization of the Federal Reserve system, caused the wave to recede somewhat in June and July. A fresh buying movement began in September, when labor troubles seemed to be lifting, and this continued till early in November, when the market broke badly, call money going to 30 per cent, the highest rate since the panic of 1907. There were several discouraging features which kept prices at a low level till the end of the year. The coal strike and the situation in foreign exchange were chief among these; also, the delay in regard to the Peace Treaty, and the fact that many expected constructive foreign developments had not come to pass, acted as depressing influences on the market. The Federal Reserve Bank of New York advanced its rediscount rates on November 5th. Averaging the prices of 20 railroad stocks, the low for the year was on December 12th, at 73.63, as compared with a low for 1918 of 77.21. The high for the average of 20 industrials was reached on November 3d, at 119.62, as compared with a high for 1918 of 89.07. Total bond sales on the stock exchange were \$3,803,000,000 par value, nearly double the amount for 1918, and about four times the total for 1917. The total of \$674,561,000 for December was by far the largest monthly total in the history of the stock exchange. The high for the average of 40 bonds was reached on June 2d, at 79.05; the low on December 18th at 71.05. These figures compare with a high of 82.36 and a low of 75.65 in 1918. The uncertainty of the railroad situation made itself felt especially in the bond market; there was also an enormous amount of

liquidation in the Victory and Liberty issues, which led the market in amount of trading.

FOREIGN EXCHANGE. The foreign exchange market during 1919 was one of the sensations of the financial world. Such utter demoralization of the market as was seen in the latter part of the year was something heretofore unknown in the history of finance. On December 9th demand bills on London sold at \$3.65½ to the pound sterling, and within the same week francs sold at 11.87 to the dollar, and Italian lira at 13.60.

At the beginning of the year, all of the allied exchanges were still being stabilized under wartime provisions. In March, the French ceased supporting their exchanges, and soon afterward Great Britain made announcement through J. P. Morgan & Co. that it had followed suit. The removal of official support caused an immediate fall in all exchanges. The decline continued until August, when sterling had fallen to \$4.12½ and francs had gone to more than eight to the dollar. Various plans were devised during the year for improving the situation, including the "Edge bill," which became a law in December (see **BANKS AND BANKING**), and the plan of H. P. Davison of J. P. Morgan & Co. Neither of these schemes accomplished much during the year, but there are hopes for improvement of the situation by this means during 1920.

Exchange dealings with Central European countries were resumed in April, cable communication being established between New York and Berlin on May 1st. This created a market for German marks, for the first time since March, 1917. These marks, which opened at about seven cents each in May, declined to about two cents each early in December, although definite quotations could not be established on account of the loose character of the market.

BUILDING. The great activity in building during 1919 presented a noticeable contrast with the previous year, when government restrictions on new building, together with the demand for labor, capital, and materials for war purposes, caused building operations to decline to surprisingly low figures. *Bradstreet's* returns from 120 cities showed a total of \$1,282,000,000, more than three times the amount in 1918 for the same number of cities. The aggregate was 81 per cent greater than in 1917, and showed an increase of 38.7 per cent over 1916, the previous high year. Building expenditures by quarter years for 1919 were as follows: First, \$118,422,000; second, \$324,260,000; third, \$433,573,000; fourth, \$405,763,000.

FAILURES. Three features stand out in the record of commercial failures for 1919, as showing the tremendous activity and prosperity of business during the year. The number of failures was the smallest in the 38 years in which *Bradstreet's* records have been kept; liabilities were the lightest since 1902; and the Business Mortality Rate (the ratio of failures to the number of concerns in business) was the smallest ever recorded. The total number of failures reported was 5550, a decrease of 40.5 per cent from 1918, the previous record low year. Total liabilities were \$112,233,000, as compared with \$138,756,000 in 1918, \$166,561,000 in 1917, and \$357,091,000 in 1914. Assets aggregated \$55,334,000, as compared with \$69,205,000 in 1918, \$84,790,000 in 1917, and \$197,170,000 in 1914. The failures for the year by quarters were as follows: First, 1550; second, 1311; third,

1290; fourth, 1399. By geographical divisions: New England, 662; Middle, 1307; Western, 1478; Northwestern, 447; Southern, 1039; Far Western, 617. Failures in New York City numbered 390. The failures represented only 0.30 per cent of the total number in business, as compared with the previous low record of 0.51 per cent in 1918, with 0.71 in 1917, 0.92 in 1916, and 1.02 per cent in 1915.

MUNICIPAL BONDS. The enormous activity of the year as compared with other recent years was also reflected in the municipal bond market, where the aggregate borrowings of states and municipalities for refunding and permanent improvements amounted to \$748,206,000, an increase of 185 per cent over the total of \$260,661,000 in 1918. This latter figure was much lower than previous years, other recent totals running as follows: 1917, \$444,932,000; 1916, \$495,903,000; 1915, \$492,590,000.

CANADA. Canada's first year of readjustment was one of activity and prosperity, from which it emerged still a creditor nation and richer than ever before. She had in an industrial sense got on her feet during the war, and in 1919 evinced a determination to stay there. As a result of the strong export demand for farm products, lumber, wood pulp, and paper, the country found itself busier than ever. Although trade with the United States showed a rather large excess of imports, and her foreign commerce showed a somewhat expected diminution, yet at the end of the year a good balance remained. Her home finance was sound, as shown in the 1919 Victory Loan, to which subscriptions were received for \$678,000,000, representing not the utilization of bank credits but the savings of the people. The great confidence of the American people in Canada is shown by the fact that American investments in Canada during the year amounted to \$225,000,000. Deposits in Canadian banking institutions at the end of 1919 were \$300 per capita, and since the signing of the armistice the banks have increased the number of branches 25 per cent. Prosperity was well distributed in the North and West, the principal exception being in Alberta and Saskatchewan, where the farmers lost a large part of their crops through drought. As in other countries the problem of international exchange is the one thing that makes predictions as to future prosperity uncertain.

Canada's foreign trade as computed for the 12 months ending November, 1919, was \$2,119,000,000 as compared with \$2,165,000,000 a year previous. Total exports were \$1,199,000,000 as compared with \$1,270,000,000 in 1918; total imports increased from \$895,000,000 to \$920,000,000. Bank clearings were \$16,710,000,000, as compared with \$13,674,000,000 in 1918 and \$12,469,000,000 in 1917. The assets of the chartered banks on November 30th amounted to \$3,100,000,000. Canadian field crops for 1919 amounted to \$1,453,000,000. This compares with \$886,000,000 in 1916. The total value of mineral products for the year is estimated to be \$167,000,000. The number of commercial failures was 629, by far the smallest number in recent years. Assets were \$7,440,000 and liabilities \$12,952,000, as compiled by *Bradstreet's*, New York.

GREAT BRITAIN. The end of 1919 found Great Britain struggling with a national debt approximately 10 times what it was in 1914. Through-

out the war, however, taxation had fortunately been far more drastic in England than elsewhere in Europe. A total tax revenue of £160,000,000 in 1914 compares with £763,000,000 in 1919, while total revenues showed an increase from £196,825,000 to £968,650,000 in the same years. Total expenditures, which were £209,193,000 in 1914, were £1,658,485,000 in 1919. In the matter of foreign trade, 1919 returns still showed a large excess of imports over exports (£670,000,000); in fact, total imports were by far the greatest ever recorded, amounting to £1,632,000,000, an increase of about 24 per cent. The fact that the adverse balance was slightly less than in 1918, however, showed that Great Britain was "coming back"; her total exports (including re-exports) of £963,000,000 showing an increase of 81.5 per cent over 1918. The acute shortage of labor in 1917 and 1918 was somewhat remedied in 1919, although the problems of fuel and transit became extremely burdensome on account of the labor unrest. Capital subscriptions were about four times as large as in 1918. As a result of the renewed openings for capital in all lines of commercial undertakings, securities on the stock market, with the exception of the speculative specialties, suffered an expected decline.

FRANCE. Perhaps nowhere (with the exception of the defeated central powers) was the burden of adverse foreign exchange felt more heavily in 1919 than in devastated France, where the franc, which commanded a premium practically everywhere before the war, was at such a disadvantage compared with the English pound and more especially the American dollar, that France could compete commercially with these countries on nowhere near an equal footing. Conditions in 1919 required an excess of imports over exports in a ratio of about 10 to one. Revival of production in the French industries was naturally a slow process, particularly on account of the scarcity of labor, but the French people undertook the task bravely. The year 1919, however, emphasized the fact that the recuperation of France would depend chiefly on the coöperation of her allies, particularly the United States.

GERMANY. With the heavy burdens imposed by the peace conditions staring her in the face, with a tremendous increase in internal debt since 1914, and with the German mark selling at an extremely low rate of exchange, Germany's problems of taxation and adjustment of credit relations in the future are enormous. She is further handicapped by a lack of raw materials with which to rebuild the export trade which she enjoyed before the war. Though information is not plentiful regarding industrial and financial conditions in the country, the opinion is held that there has been a recent awakening of the "will to work," which is one of the more hopeful aspects of the outlook for the future.

FINLAND. Formerly a Grand Duchy of the Russian empire, but proclaimed an independent republic, Dec. 9, 1917, and since recognized by most of the Powers (see below under *Government*); situated in the northwest of Europe on the gulfs of Finland and Bothnia. Capital, Helsinki.

AREA, POPULATION, ETC. The area was given in 1915 at 125,689 sq. mi., but a later estimate places it at 144,249 sq. mi.; population (1915)

3,300,650. The urban population in 1915, was 512,228, and the rural, 2,788,424. Males numbered 1,643,207, and females, 1,657,443. The Finnish-speaking numbered 2,565,742; Swedish, 344,364. The great majority are Lutherans (3,297,783, in 1914). Helsingfors (with Sveaborg) was reported in 1915 as having 176,521 inhabitants, but an estimate of July, 1919, places the population at about 200,000. In 1915 Abo had 54,600 inhabitants; Tammerfors, 45,560; Viborg, 29,329; Vasa, 24,536; Uleaborg, 21,605; Kuopio, 17,587; Björneborg, 17,571. Marriages (1915) 17,785; births, 83,306; deaths, 52,205. The emigration in 1917 was 2773. There is one university, with 3478 students in 1916.

PRODUCTION. Rye, oats, barley, wheat, and potatoes are among the chief crops, and the butter and milk industries are important; but the great source of wealth is the forests, and saw-milling and paper-making are the leading industries. The largest and thickest of the forests are in the centre between the great lakes and the plain bordering the gulf of Bothnia, and the chief trees are pine, spruce, and birch. Forests make up 53.6 per cent of the total area. The state forests cover 30,741,998 acres and yielded an income in 1918 of about \$1,000,000, a figure which indicates that they have not been efficiently exploited. The giving over of forest lands to private ownership has within the last 20 years practically ceased. The harvest of 1915 was, in hectolitres: Wheat, 91,765; rye, 3,971,581; barley, 1,769,360; oats, 8,424,126; potatoes, 7,234,939; flax and hemp, 1205 tons. In 1915, horses (3 years of age) numbered 287,926; horned cattle (2 years of age), 1,149,798. The following information in regard to recent agricultural production is supplied by the U. S. Bureau of Foreign and Domestic Commerce, Dec. 20, 1919:

The harvests in 1918 were very small, owing, first, to disturbed labor conditions; second, to a dearth of horses caused by the civil war; third, to heavy and continuous rains at the end of the summer; fourth, to lack of fertilizers; and fifth, to the scant supply of agricultural machines. The last two conditions were, of course, the result of a complete cessation of foreign imports. There are no statistics for the production of butter in 1918, but considering the quantities delivered for controlled consumption (8,195,000 pounds) and the 1,153,130 pounds exported as compensation for imported grain and sugar, the amount may be estimated at 9,348,130 pounds. The growth of the butter industry in Finland has been so marked as to deserve special note. In 1887 Sweden took the greater part, 7,150,000 pounds; Russia, 5,500,000 pounds; Germany, 1,650,000 pounds; Denmark, 733,330 pounds; and England only a small quantity. But in 1894 Denmark was the principal purchaser, with 15,950,000 pounds, and England was next, with 7,700,000 pounds, while Russia took 2,730,000 pounds, and Sweden and Germany, 733,300 pounds each. Five years later, however, England became the chief consumer, taking 11,550,000 pounds, while Denmark took 8,065,000 pounds; Sweden, 1,100,000 pounds; Russia, 750,000 pounds; and Germany, 370,000 pounds.

One recent law will seriously affect agriculture—the law that allows the renter to buy his holding, or in case of a desire to continue his tenancy he is permitted to pay his rental in

money instead of being required to pay it in labor. As a result, the larger estates will lose their cheap labor; but it is hoped to offset this loss by a greater use of machinery. With ownership, the farmer tenants will become more interested in their work and will have the ability and an incentive to buy modern implements. The recent eight-hour labor law does not affect labor on the farm.

Agriculture will also be aided by the stipulated minimum prices guaranteed by the State and by the subvention of 10,000,000 marks (\$1,250,000) appropriated by the Diet for new lands during 1919, 1920, and 1921. At present all products of the farm are extremely high when compared with prices in other countries. It was hoped that the imports of grain from the United States during the summer of 1919 would bring them lower, but so far they have had no effect. The wages of farm laborers have not decreased but are continually rising. With the diversion of this labor to the expected rehabilitation and post-war industrial and trade prosperity, labor on the farms is expected to grow still more dear.

The continued depreciation of the Finnish mark has produced such an unfavorable foreign exchange that the necessary agricultural implements, as well as artificial fertilizers, have become very expensive. The great expense of importing fertilizers prevents the improvement of the farms, which became exhausted during the war. Until this difficulty is overcome, it will be impossible to raise agriculture to its former standard of productiveness.

The production of pulp and paper for 1911 to 1915 inclusive is shown in the following table:

Years	Mechanical pulp and wood-board Tons	Chemical pulp Tons	Paper Tons
1911	186,677	130,381	158,280
1912	216,401	137,850	167,138
1913	285,356	159,384	184,780
1914	220,569	153,035	180,135
1915	241,915	157,238	204,903

MINERAL PRODUCTION. The following ores are mined in Finland, or prospecting work concerning them is carried on: Copper, pyrite, iron pyrite, magnetite, galenite, and molybdenite. The principal copper mines are situated at Outokumpu, between Joensuu and Kuopio; Pitkaranta, on Lake Ladoga; and Orijarvi, west of Helsingfors. There are iron mines at Pitkaranta, Kelivaara, and Walimaki, on Lake Ladoga; and at Jussaro, on the coast west of Helsingfors. The Director of the Geological Survey of Finland states that there are extensive deposits of iron ore in Lapland.

In the eighteen-seventies gold was discovered in the north of Finland in the bed of the Ivaljoki, which empties into the Arctic. Gold washing since then has taken place regularly, but with inconsiderable results.

Only small quantities of ore were produced in 1918 because of the war and the high cost of labor. At Outokumpu, 12,000 tons of copper ore were mined; at Pitkaranta, 3000 tons of magnetite; at Tipasjarvi, 800 tons of iron pyrite; and at Otravaara, 1000 tons of iron pyrite.

Prospects are good for mining copper at Outokumpu, where there is a large ore body containing 6,000,000 to 8,000,000 tons of ore in sight, with 4 per cent of copper and 27 per cent of sulphur.

for 1915, 1916, and 1918. The Finnish mark was converted at par (\$0.183) for 1915 and 1916 and at eight marks to the dollar for 1918. Figures for values are not available for 1917.

Classes of articles	1915		1916		1918	
	Imports	Exports	Imports	Exports	Imports	Exports
1. Live animals	\$56,900	\$521,300	\$298,600	\$143,400	\$2,241	\$16,247
2. Meats and game	2,845,900	9,851,700	1,644,900	9,877,000	3,314,898	1,073,794
3. Fish, fresh, salted, and smoked	671,100	1,751,700	508,200	2,065,500	4,051,867	266,761
4. Cereals	28,718,600	212,300	39,891,400	291,200	2,861,658	67
5. Vegetables	748,800	28,200	498,700	17,800	5,631,142	.....
6. Fruits and berries	1,605,400	175,600	3,071,400	108,700	266,086	87,750
7. Preserves and shellfish	257,800	117,500	817,700	177,400	2,587,416	87,866
8. Colonial products and spices	19,586,600	69,300	25,996,300	81,100	14,002,542	271,431
9. Beverages	1,201,000	11,000	1,071,700	4,800	194,406	.....
10. Drugs	298,000	3,700	500,600	4,800	355,966	376
11. Bones, bristles, etc.	932,200	94,600	818,500	84,500	852,553	141,673
12. Skins, leather, furs	5,810,800	862,100	4,569,700	328,500	769,691	570,305
13. Plants, seeds, etc.	7,131,500	934,900	8,046,600	652,500	1,428,500	301,895
14. Wood and wood manufactures	511,800	7,007,600	909,200	13,695,900	261,087	5,732,790
15. Paper pulp and paper	239,300	18,036,200	470,500	48,853,100	219,424	12,183,887
16. Spinning materials	7,997,000	2,100	16,208,500	18,500	1,290,152	140,330
17. Thread and cord	1,323,600	652,500	2,816,300	757,700	173,998	1,359
18. Textiles	3,225,200	1,885,000	8,720,100	3,489,800	4,967,857	189,770
19. Ready-made clothing	1,060,300	642,100	2,784,500	554,900	1,123,905	2,618
20. Gums and resins	3,510,700	93,800	5,460,400	473,800	825,083	852,507
21. Oils and greases	3,827,000	110,600	6,345,600	197,200	711,933	103,075
22. Perfumes	286,800	600	613,700	1,400	145,887	9,827
23. Minerals and manufactures	1,927,900	483,900	5,073,600	727,400	3,644,427	259,099
24. Chemical products	2,774,400	584,000	8,349,400	1,290,800	651,644	29,214
25. Explosives	810,900	123,300	335,400	1,816,100	426,605	96,208
26. Colors and dyes	984,900	97,900	2,538,800	291,200	783,478	35,890
27. Metals and manufactures	8,911,400	2,515,400	26,036,100	4,766,300	5,377,069	526,111
28. Machines, motors, and tools	3,659,700	933,500	8,112,200	4,812,100	4,387,805	214,565
29. Musical instruments, clocks, watches, etc.	485,000	5,200	904,400	74,300	411,059	16,535
30. Vehicles	89,200	493,100	93,400	514,500	108,757	7,503
31. Ships and boats	185,500	1,019,600	304,700	285,600	7,549	2,700
32. Art objects	667,600	73,700	732,200	185,500	586,381	91,075
33. Articles of luxury	286,600	1,000	403,600	7,300	227,732	.....
34. All other articles	113,500	1,400	381,700	700	456,715	82,202
Total	111,632,900	49,396,400	185,823,100	96,101,300	62,607,013	23,345,430

The production of pig iron is carried on in 15 blast furnaces, 11 in eastern and four in western Finland.

FISHERIES. Some 7000 families in Finland are supposed to live by fishing. They have over 10,000 boats, all small, manned by two to four men. During 1918 the take was very large, owing to the lack of nearly all other kinds of foodstuffs. The total catch for a normal year immediately preceding the war averaged 23,000 tons, of which about 14,000 tons was from the sea, 8000 tons from the lakes, and 1000 tons from the rivers. More was probably obtained, as the reports are not complete. The largest part of the annual catch consists of Baltic herring, or "stromming," which amounted in 1918 to 9000 tons. The common herring, of which an enormous quantity was caught in the Baltic 300 years ago, is now rare. The small anchovy, which is termed "hvassbuk," has a certain importance in the southwestern portion of the country.

COMMERCE. The following information in regard to commerce and finance is supplied by the United States Bureau of Foreign and Domestic Commerce: Finland's foreign commerce in 1918 amounted to 687,619,548 marks (\$85,952,443), of which sum 500,856,106 marks (\$62,607,013) represented imports and 186,763,442 marks (\$23,345,530) exports. The following table gives the classes of imports and exports entering into the trade of Finland and their value

There were no exports from Finland to the United States during 1918.

COMMUNICATIONS. No later figures for railways and shipping were available than those given in the preceding YEAR BOOK. Railway mileage in 1914 was 2506 of which all but 217 was owned by the State. The state operates the privately owned lines. There were 2464 post offices in 1916. Navigable waterways extend 2765 miles. Vessels navigating the canals in 1915 numbered 47,873. Merchant marine in 1915 comprised 3257 sailing vessels of 380,134 tons, and 564 steamships of 79,172 tons. Vessels entered in 1914, 8399, of 2,352,282 tons, and cleared, 8538 of 2,326,217 tons.

FINANCE. Owing to the revolutions in Russia and in Finland, the Diet was prevented from passing the budget at the usual time, and the budget for 1918, therefore, was adopted only at the end of that year. By that time the sums of most of the revenue and expenditure were already known, so that it was possible to calculate the amounts in close accord with the facts. The national income in 1918 did not suffice for the expenditures, and recourse was had to loans, the total amount of which was 530,000,000 marks (\$66,250,000). This was due to special and exceptional circumstances, which on the one hand increased expenditures and on the other hand diminished the revenue. The revenues and expenditures in 1918 were as follows:

Revenues	Expenditures	
	Marks	Dollars
Ordinary revenue	387,248,400	48,406,050
Extraordinary revenue:		
Special taxation	150,000,000	18,750,000
Other special revenue ..	6,284,800	785,600
Loans	530,278,100	66,284,762
Grants from various funds	86,692,965	10,836,621
Total	1,160,504,265	145,063,033

Expenditures	Total	
	Marks	Dollars
Ordinary expenditure	654,616,408	81,827,051
Ordinary grants	754,160	94,270
Extraordinary expenditure ..	455,576,033	56,947,004
Extraordinary grants	40,000,000	5,000,000
Balance in hand	9,557,666	1,194,708
Total	1,160,504,265	145,063,033

GOVERNMENT. Under the constitution as modified in 1906 the Diet consists of a single chamber with 200 members chosen by direct and proportional election by all citizens, men or women, of 24 years of age or over. After the accession of the Bolshevik government in Russia the Finnish Diet, as noted above, proclaimed the country an independent republic (Dec. 9, 1917) and independence was recognized by Russia, Sweden, Norway, France, Spain, Denmark, and Germany, in the order named on the understanding that an arrangement be reached between Finland and Russia in regard to formal reparation. Other Powers including the United States also recognized the new republic. Civil war followed during the early months of 1918 between the "White" and "Red" forces, resulting in the triumph of the former (see preceding YEAR BOOK). General Baron Gustaf Mannerheim was chosen regent. Elections in the Diet were held in March, 1919, resulting in the following distribution of seats by parties: Social Democrats, 80; Coalition party, 28; Progressives, 26; Agrarians, 42; Swedish party, 22; Christian Labor party, 2. The Cabinet, appointed in April, 1919, was composed as follows: Prime Minister, Mr. Kaarlo Castren; Minister for Foreign Affairs, Dr. Eino Rudolf Woldemar Holsti; Minister of Finances, Dr. August Ramsay; Minister of Education, Dr. August Mikael Soininen; Minister of Justice, Dr. Karl Gustaf Soderholm; Minister of Interior, Colonel C. Voss-Schraeder; Minister of War, Colonel Karl Rudolf Walden; Minister of Commerce and Industries, Dr. Juho Heikki Vennola; Minister of Communications and Public Works, Mr. Eero Erkkö; Minister for Food Supplies (temporary office), Mr. Kaarle Juhani Mikael Collan; Minister of Agriculture, Mr. Kyosti Kallio; Minister for Social Affairs, Mr. Santeri Alkio; Minister without Portfolio, Mr. Mikko Luopajarvi.

HISTORY. In December, 1918, the dictator, Svinhufvud, resigned along with his prime minister and was succeeded by General Mannerheim, the organizer of the Finnish White Guard who became Regent and as such practically had dictatorial power. After completing the task of ridding the country of Bolshevik activities, he directed his efforts against the Russian Reds. The Finns claimed a considerable part of the Russian borderland from the Murmansk and Karelian coasts down to the Gulf of Finland, and it was thought if Russia continued in its present condition Finland and Estonia might unite into a single state including Petrograd. The party in favor of this forward policy including a campaign against Petrograd and an increase of Finland's territory and power, while serving as a protector of Europe against the Bolsheviks, seems to have gained the upper hand. But on July 25th Professor K. J. Staahlberg was elected president of the republic over his opponent General Mannerheim by a majority of

143 against 50, his majority being made up of the bloc formed by the Socialists, Agrarians, and Progressives. This indicated a turn to a more liberal policy. M. Staahlberg had been professor of law at the University of Helsingfors, had served as a member of the Diet to which he was returned again in March, and he had been several times a member of the cabinet. During the debates of 1918, when the question of a republic was under discussion, he was on the side of the republicans, and hence at that time opposed to the German interests, which favored a monarchy as certain to result in the choice of a German ruler. As a deputy in the Diet he belonged to the Young Finn party which had been for the most part monarchists, but he argued that Finland was in effect a republic and in this he was followed by the Old Finns, and some of the members of the Young Finn party who formed themselves into a Progressive party in opposition to the monarchists; and he conducted a campaign in the leading Finnish newspaper against the monarchists. General Mannerheim who had been retained after the month of September, having put down the revolution, lost the control as the result of the March elections in which, at the advice of the Allies, Socialists had been permitted to stand for election to the Diet. Serious questions both external and internal, had to be settled, such as the affair of the Aland islands and of Karelia. Moreover a corps of Finnish volunteers was still fighting in the region of Olonetz. The Socialists, who with the Agrarians constituted a majority of the Diet, regained their former ascendancy. There was an agitation on the part of the Swedish-speaking Finns in spite of the privileges granted them by the constitution, and German propaganda was said to be secretly carried on. The financial situation was bad, although it appeared that the rate of exchange might become favorable if the exportation of Finnish currency to the United States and England were permitted. M. Staahlberg was regarded as a thorough nationalist, and was said to have the confidence of the Finns. According to the republican constitution which was referred to the Diet in May, and carried soon afterwards, receiving the sanction of General Mannerheim in August, the term of the president was for six years. The president has the right of veto, but this cannot be exercised the second time for a measure voted anew by another Diet.

FIRE INSURANCE. See INSURANCE.

FIRE PROTECTION. Municipal authorities, and especially their fire departments, along with fire insurance and other interests in 1919 naturally endeavored to restore fire protection and fire prevention to at least pre-war conditions. In the fire departments of the different cities of the United States many of the members had been in military or naval service and in not a few cities neither funds nor facilities were

available to carry out necessary schemes of equipment or extension. However, everything possible was done to cope with conditions and, with much of the high hazard war work eliminated, fire and insurance matters tended to resume their natural course which in the main is indicated by the accompanying tables.

It must be understood however that the matter of value was an important element in 1919 and that not only was the increased value of property on a basis different from that of previous years but that losses must be considered in the same light, and that where they have been kept below those of previous years there was a great gain. Especially was this true in view of the larger exposure produced by enhanced values and new construction; and the fire underwriters were led to believe that the work they had been doing for fire prevention was beginning to bear fruit. Another characteristic of the fire prevention campaign in 1919 was that the number of fires of suspicious origin included in what is known as the "moral hazard," was reduced to a remarkably low point, due it was true to the ease and high prices that attended the disposal of stocks of goods at large and quick profits.

IMPORTANT FIRES. The accompanying tabula-

Location—Description	Amount
Stamford, Conn., dye extract plant.....	\$1,250,000
New York Harbor, fruit ship and cargo...	1,500,000
Bernard, N. C., tanning works.....	1,000,000
Mobile, Ala., electric power plant and other	1,000,000
Atlanta, Ga., freight station and 80 carloads	
food	1,000,000
Aberdeen, Md., government proving grounds	
buildings	1,000,000
Cedar Rapids, Ia., starch works.....	3,000,000
Norfolk, Va., tobacco warehouse.....	3,250,000
Detroit, Mich., factory plant, lumber and	
hotel	1,675,000
Port Colborne, Ont., government grain ele-	
vator	1,800,000
Superior, Wis., sack storage plant.....	1,000,000
Rock Island, Ill., tractor factory.....	1,500,000
Sheffield, Ala., nitrate plant warehouse...	2,000,000
Big Horn, Wyo., forest fires.....	1,300,000
Long Island City, oil works and other....	4,250,000
Omaha, Neb., court house building.....	1,100,000
Wagoner City, Texas, business section....	1,000,000
Eldorado, Ark., cotton compress.....	1,000,000
Toledo, Ohio, wagon and auto body factory	1,000,000
Westfield, Pa., tannery plant.....	1,000,000

The total number of outbreaks of fire during 1919 which, in each instance, resulted in an estimated property damage of \$10,000 or over, was 2904, as compared with 2943 such fires in 1918. The accompanying table gives the fires of \$10,000 and a comparison with the fires of the 10 preceding years:

NUMBER OF FIRES 1909-1919, CLASSED AS TO ESTIMATED PROPERTY LOSS
(From *Journal of Commerce*)

	\$10,000 to \$20,000	\$20,000 to \$30,000	\$30,000 to \$50,000	\$50,000 to \$75,000	\$75,000 to \$100,000	\$100,000 to \$200,000	\$200,000 and over	Total
1919	855	516	411	326	171	357	268	2,904
1918	906	527	387	325	171	359	268	2,943
1917	1,081	581	427	356	164	340	251	3,150
1916	1,041	551	371	351	124	311	208	2,857
1915	1,198	590	418	375	138	291	147	3,152
1914	1,233	667	485	406	182	386	193	3,502
1913	1,298	695	492	416	182	355	184	3,590
1912	1,278	689	514	438	162	396	168	3,640
1911	1,159	596	525	402	178	352	189	3,410
1910	1,098	594	450	371	196	324	192	3,225
1909	1,128	570	457	444	174	337	160	3,275

tion from the *Journal of Commerce* (New York) indicates the most important fires taking place in the United States in 1919. Of these the oil fire at Greenpoint, New York City was the most serious. On Sept. 13, 1919, a fire broke out among the tanks of the Standard Oil Company's Kings County Refinery at Greenpoint on the banks of Newtown Creek, just off the East River, New York City, and continued for several days, causing a loss estimated at over \$4,000,000. Other large individual fires during the year 1919 were those in Savannah, Ga., involving \$4,000,000 value; Cedar Rapids, Ia., involving \$3,000,000, and Norfolk, Va., \$3,250,000. Altogether there were 27 fires during the year, each of which resulted in an estimated property loss of a million dollars or over. A list of these large fires is given herewith:

Location—Description	Amount
Pittsburgh, Pa., Film Exchange building...	\$1,000,000
Montreal, Que., automobile factory and busi-	
ness houses	1,000,000
Philadelphia, Pa., oil tanks, steamers, and	
barges	1,000,000
Sioux Falls, Ia., office, building and stores.	1,000,000
River Point, R. I., textile mill plant.....	1,250,000
Nyack, N. Y., aniline products plant.....	1,000,000
Savannah, Ga., fertilizer factory, cotton and	
railroad terminals	4,000,000

AMERICAN FIRE LOSSES IN 1919. The total loss by fire in the United States and Canada during the year 1919, as recorded and summarized in the *Journal of Commerce and Commercial Bulletin* (New York) reached the total of \$269,000,775. This compares with \$317,014,385 the year 1918 and \$267,273,140 for the year 1917. The figures of 1919's estimated property loss by fire represented an enormous economic waste of the wealth of the country and had only been exceeded twice previously, in 1918 and again in 1906, when the San Francisco conflagration raised the annual loss figures to \$459,710,000. The reduction of \$48,013,610 in 1919 from 1918 was particularly gratifying, for with the higher valuations prevailing it represented a much greater decrease than the figures alone would indicate.

The fire losses for 1919 bring the total fire losses for the 41 years from 1879 up to the startling aggregate of \$7,031,966,820, or a yearly average for the entire period of \$171,511,386. In comparing this yearly average with last year's record *The Journal of Commerce* reminds its readers that in earlier years the total valuation of property exposed to fire hazards was only a fractional part of the present valuations.

FIRE LOSSES IN U. S. AND CANADA, 1879-1919

1919	\$269,000,775	1899	\$136,773,200
1918	317,014,885	1898	119,650,500
1917	267,273,140	1897	110,819,650
1916	231,442,995	1896	115,655,500
1915	182,836,200	1895	129,835,700
1914	235,591,350	1894	128,246,400
1913	224,728,850	1893	156,445,875
1912	225,320,900	1892	151,516,000
1911	234,337,250	1891	148,764,000
1910	234,470,650	1890	108,893,700
1909	208,649,200	1889	123,046,800
1908	238,562,250	1888	110,885,600
1907	215,671,250	1887	120,283,000
1906	459,710,000	1886	104,924,700
1905	175,193,800	1885	102,818,700
1904	252,554,050	1884	110,108,600
1903	156,195,700	1883	110,149,000
1902	149,260,850	1882	84,505,000
1901	164,347,450	1881	81,280,000
1900	168,862,250	1880	74,643,400
		1879	77,703,700

Total for 41 years.....\$7,031,966,820

The losses for the year 1919, month by month, as compared with the monthly record of the two preceding years, 1917 and 1918, are given herewith:

	1917	1918	1919
January	\$36,431,770	\$37,575,100	\$29,446,325
February	29,587,600	20,688,155	26,891,950
March	17,523,000	20,213,980	22,201,900
April	18,597,225	20,108,900	15,484,750
May	24,968,800	20,545,900	16,516,800
June	15,513,270	24,890,600	20,475,750
July	16,143,050	24,537,000	20,198,600
August	21,751,100	31,476,650	24,526,000
September	13,814,490	13,434,300	29,083,500
October	26,884,450	75,412,800	13,358,400
November	20,198,025	12,333,750	28,450,800
December	26,860,300	15,737,750	27,866,500
Year	\$267,273,080	\$316,954,385	\$269,000,775

STATISTICS OF FIRES. The Committee on Statistics and Origin of Fires of the National Board of Underwriters presented its annual report on May 22, 1919. From this report there has been abstracted, as usual, statistics of fires in the larger American cities for the year 1918.

In 1918 35 American cities had a per capita fire loss in excess of \$5, Burlington, Vt., heading the list with \$21.74. This can be compared with 29 in 1917. One city, Fresno, Cal., was on this list for four of the last five years, three cities for three of the last five years, and eight cities for two years of the same period. The 1918 figures are given herewith.

CITIES IN WHICH LOSS EXCEEDED \$5.00 PER CAPITA 1918

Burlington, Vt.	\$21.74	*Des Moines, Ia.	\$7.14
Port Smith, Ark.	19.79	Indianapolis, Ind.	7.06
Lima, Ohio	16.52	Pawtucket, R. I.	6.46
Kansas City, Mo.	12.86	Danbury, Conn.	6.45
*Oswego, N. Y.	12.76	Newark, N. J.	6.42
†Port Huron, Mich.	12.18	Findlay, Ohio	6.36
Canton, Ohio	11.83	*Jersey City, N. J.	6.19
†Fresno, Cal.	10.72	*Wheeling, W. Va.	6.12
Hoboken, N. J.	10.47	San Antonio, Tex.	6.01
Revere, Mass.	8.76	*Little Rock, Ark.	6.00
Eau Claire, Wis.	8.68	Walla Walla, Wash.	5.91
*Duluth, Minn.	8.52	*Saginaw, Mich.	5.55
Leominster, Mass.	8.23	Chattanooga, Tenn.	5.44
Memphis, Tenn.	7.98	Beaumont, Tex.	5.36
†Norfolk, Va.	7.72	Somerville, Mass.	5.26
Johnstown, Pa.	7.71	*Williamsport, Pa.	5.20
Bloomington, Ill.	7.34	Tulsa, Okla.	5.08
†Charlotte, N. C.	7.34		

* These cities in this class in two of the last five years.

† In this class three of the last five years.

‡ In this class four of the last five years.

Another interesting table is that giving the comparative fire losses for five years in which actual figures for cities are compared with the statistics covering the entire country. In 1918 compilation figures for 328 different cities were duly summarized.

STATISTICS OF FIRES IN AMERICAN CITIES, 1918

	Area Sq. miles	Population	No. of Alarms	Total No. of fires	Confined to building or place of origin	Total loss	No. of fires per 1000 popu- lation	Loss per capita
New York	314.75	5,872,143	15,788	13,971	13,743	\$9,538,725	2.38	\$1.63
Chicago	199.37	2,621,419	17,665	11,206	10,895	5,368,610	4.27	2.02
Philadelphia	129.75	1,800,000	5,771	4,831	1,677	4,339,714	2.68	2.41
St. Louis	61.37	850,000	4,640	3,442	3,309	2,518,242	4.04	2.96
Detroit	79.62	850,000	4,549	4,019	...	2,632,031	4.72	3.09
Boston	47.81	796,310	5,138	4,641	4,590	2,827,612	5.83	3.55
Cleveland	60.	750,000	3,934	3,344	...	1,861,444	4.46	2.41
Baltimore	33.66	650,000	2,446	2,370	2,357	643,222	3.65	.99
Los Angeles	362.04	650,000	1,806	1,173	1,126	545,192	1.80	.84
Buffalo	...	...	...	...	...	...	...	...
San Francisco	38.87	500,000	3,047	2,460	2,447	...	4.92	...
Cincinnati	72.	418,022	1,668	1,381	1,360	985,494	3.30	2.28
Newark, N. J.	23.5	450,000	1,450	1,220	1,159	2,889,552	2.71	6.42
New Orleans	196.25	380,000	935	812	792	369,367	2.13	.97
Washington, D. C.	70.	370,000	2,064	1,740	1,682	798,690	4.70	2.14

COMPARATIVE FIRE LOSSES

	Population	Total loss	Per capita
1914—Whole country	98,781,324	*221,439,850	2.24
298 cities	40,213,230	† 93,868,795	2.32
1915—Whole country	100,899,318	*172,033,200	1.71
333 cities	35,161,266	† 68,386,218	1.94
1916—Whole country	102,017,312	*214,530,995	2.10
329 cities	36,055,568	† 79,440,658	2.20
1917—Whole country	103,635,606	*250,753,640	2.42
327 cities	36,557,011	† 89,483,398	2.45
1918—Whole country	105,253,300	*290,959,885	2.76
328 cities	38,079,781	† 95,866,412	2.50

* Estimated. † Actual figures reported.

FISCHER, EMIL. German scientist, died July 6. He was born in Rhenish Prussia Oct. 9, 1852, and devoted himself to the study of organic chemistry in which he rapidly won distinction. In 1874 he completed an investigation on the coloring matters and he became one of the leading organic chemists soon afterwards with his discovery of phenylhydrazine. In 1878 he was promoted to the rank of extraordinary professor in the university of Munich and he began investigations into the constituents of coffee and tea which resulted in the development of an entirely new branch of chemistry. His subsequent researches and successes are briefly summarized in the *Science*, August 15. He received the Nobel prize in 1910.

FISHERIES. See ALASKA.

FISK UNIVERSITY. A co-educational institution for negroes, located at Nashville, Tenn. The enrollment for the fall of 1919 was 515, while there were 43 members on the teaching staff, nine being new this year. The income for the year was \$252,468. The library contains about 12,000 volumes. In 1919 the customary education work of the university was resumed after the cessation in 1918, due to lack of instructors caused by the war. The music department has had in 1919 a great increase in pupils. Fisk was founded in 1866. President, Fayette Avery McKenzie, LL.D., Ph.D.

FLAX. The flaxseed crop of most of the world's principal flax producing countries in the northern hemisphere in 1919 was smaller than in 1918 and was also below normal. According to provisional figures published by the International Institute of Agriculture, Rome, the crop in British India was about 9,167,000 bushels or less than half of the production in the preceding year and also less than half of the average crop for the five years 1913 to 1917, inclusive. The Canadian yield of 7,373,900 bushels was over 20 per cent above the preceding yield but still about 25 per cent below the five-year average.

In the United States, according to data given out by the Department of Agriculture, the crop was only 8,919,000 bushels, the smallest on record for years, as the result of a severe drouth during the growing season in North Dakota and Montana, the principal flaxseed producing States. In 1918 the yield was 13,369,000 bushels and the average yield for 1913 to 1917, inclusive, was 13,818,000 bushels. The area devoted to flaxseed culture in 1919 was 1,683,000 acres as compared with 1,910,000 acres in 1918 and 1,756,000 acres, the average area for the five-year period. The average yield per acre was only 5.3 bushels or 1.7 bushels below the average acre yield of the preceding year and 2.6 bushels under the five-year average. The farm price on December 1st, 438.9 cents per bushel, was the highest on record and on this basis the total value of the crop was \$39,145,000 which stood next to the record value of \$45,470,000 in 1918.

The low yields in the United States and in British India were largely the cause of the unusually high prices of linseed oil which prevailed. The Argentine flaxseed crop harvested early in 1919 amounted to 27,754,000 bushels. Data on the world's flax fibre crop were not available.

FLETCHER, HORACE. Writer, lecturer, and diet expert, died at Copenhagen, Denmark, January 13. He was born at Lawrence, Mass., Aug. 10, 1849, educated at Dartmouth and became

an extensive traveler and engaged in many occupations, but after 1895 devoted himself to the study of sociology and scientific research in human nutrition. He made investigations in the physiological laboratories in the universities of Cambridge, England, and Yale, and was the author of the system known as Fletcherism which had a wide following throughout the world. He was the author of the following: *A B C of Snap-Shooting; Menticulture; Happiness; That Last Waif, or Social Quarantine; Nature's Food Filter, or What and When to Swallow; Glutton or Epicure; A B-Z. Our Own Nutrition; Optimism—A Real Remedy; Fletcherism, What It Is; Die Essucht* (German); works translated into Italian, Hungarian, Polish and Russian.

FLETCHER, LIEUT.-COL. WILLIAM ALFRED LITLEDALE. A well-known British oarsman, died at Liverpool, February 14. He was placed by many as the best of the heavy weight oarsmen of his time. For several years at Henley he won every event for which he entered. He traveled widely in the East. He distinguished himself in the South African War and during the late war he was in command of a Liverpool regiment in France.

FLOOD PREVENTION. Since 1913 when the great Ohio Valley floods occurred in the Middle West of the United States, the YEAR BOOK has recorded the progress made in measures and projects for protection from this great menace. The importance of such actions had been realized in some quarters for many years but it required the great loss of life and property experienced in 1913 to start in earnest remedial measures.

By 1919, however, in a number of regions flood protection and measures to that end had passed distinctly beyond the legislative and design stage and construction was in progress notwithstanding shortage and high cost of labor and post-war conditions of finance and materials. Accordingly a summary of some of the more important work in progress at the end of 1919 is of interest and certain features will receive more extended treatment in subsequent paragraphs.

In Ohio at the Miami Conservancy District the scheme involving detention reservoirs and channel improvement amounting on a pre-war estimate to over \$25,000,000, was well under way and was the most extensive of the American works in this field. Columbus, Ohio, was seeking a measure of protection at a cost of \$3,500,000 by enlarging the channel of the Scioto River within the city. Erie, Pa., had received additional protection against floods from Mill Creek (see YEAR BOOK for 1918). Augusta, Ga., had constructed a levee system protecting against floods from the Savannah River at a cost of \$2,000,000, the work having been in progress since 1914. At Kansas City, Kan., the Kaw Valley Drainage District had made important improvements of the channel of the Kansas River within the city by building levees and reconstructing bridges whose piers restricted the channel. This like other flood protection projects was attended by several years of litigation and the voters had not seen fit to authorize bond issues in sufficient amounts to secure adequate protection by completing the works called for in the engineers' plans. The city of St. Louis was preparing to control the floods of the river Des

Peres at the southern part of the city by suitably inclosing the river. In passing through the city it drains about 110 square miles, most suburban and rural districts and in flood was estimated to afford a run-off of 40,000 sec. feet. In East St. Louis studies referred to below were completed during 1919 and represented important improvements.

Other cities in the Middle West awoke to the importance of their flood dangers and it was found in some cases that comparatively slight expenditures would provide some protection. Thus at Decorah, Iowa, it was proposed to build a small detention dam which would afford protection against floods from Dry Run. Likewise at Council Bluffs, Iowa, a small stream from the hill country passing through the business district of the city had proved a source of damage and expense by overflowing at periods of high water. Accordingly plans were completed in 1919 whereby protection would be secured by the construction of works amounting in cost to about \$1,000,000.

Such work was typical of a general movement to study flood conditions and to eliminate possible points of danger. Faulty planning of cities through which streams pass, encroachments on river channels either by bridge piers or buildings on the banks, have been responsible in large measure for continual danger and damage in many cities and towns in addition to the natural hazards of sudden floods. By the construction of dams or dikes forming detention basins or reservoirs to hold flood waters, and the proper control of channels or banks, as well as providing emergency channels, it was realized that much protection could be secured. Everywhere engineers were becoming more interested in flood and drainage studies and investigations, particularly where floods produced serious and annual damage. It was a tendency in this field to secure additional information through rain gauges and stream gauges records, not only in the larger drainage areas but also in the smaller districts. Such data would be most welcome not only for local improvement but also in large projects involving State participation and authority.

MIAMI FLOOD WORKS. One of the features of the flood protection project for the Miami Valley in Ohio was the relocation of railways, and the railways crossing the flood retarding basins were being removed several miles and lifted above the reservoir flow lines. Where complete clearance was impracticable, parallel levees were being built to embrace the roadbed and isolate it from the flood waters on both sides. Long culverts under levees and roadbed were designed to keep the water level on both sides and equalize the pressure. Of the five retarding basins only two interfered with railway lines seriously and involved major railway changes. At the retarding basin at Huffman and at Tylorsville some 55 miles of trackage changes were in progress, involving approximately 40 miles of new roadbed over 100 culverts and bridges, 500,000 cubic yards of levee, 1,500,000 cubic yards of cut, and 1,300,000 cubic yards of fill. At the Huffman retarding basin the Erie Railroad, the Cleveland, Cincinnati, Chicago, & St. Louis Railway, and the Ohio Electric Railway running out of Dayton traversed the dam site and retarding basin wall at Tylorsville. The Baltimore and Ohio Railroad passing by the west edge of the reservoir within the flow line of maximum flood was re-

located by building a new line higher up on the valley. The lines of the four railways mentioned were included in property condemned because it either interfered with the control works under construction or was in the district subject to possible inundation, and as a result new lines were reconstructed which involved considerable mileage both up and down stream in order to secure satisfactory approach grades to the higher level. The expense of this relocation was estimated to amount to about \$4,000,000, though the railways were assessed for benefits that would accrue from the decrease of flood hazards, and adjustment was made in case the lines were either lengthened or shortened. For example, in the case of the Baltimore & Ohio, a more favorable relocation was secured, for which the railway made corresponding allowance. All of the construction is modern, including concrete bridges and levees where necessary for protecting the tracks which were being built. The new construction was started in April, 1918, and was to be finished early in 1920.

An important step in the Miami Flood Protection System was the closure of the Twin Creek Valley, 15 miles southwest of Dayton, Ohio, by the earth embankment of the Germantown dam. This dam is to be an earth embankment of 107 feet maximum height and 1210 feet length, pierced by a permanently open twin outlet conduit, of which each half has an arch section 9.5 by 12.3.

COLUMBUS, OHIO, FLOOD PROTECTION. Flood protection works for Columbus, Ohio, designed to fit an appropriation of \$3,500,000, were under way during 1919. This work contemplated widening and rectifying the channel and bridge construction, but was not designed to secure full safety from such maximum floods as that of March, 1913, when a volume of water measuring 140,000 cubic feet per second passed. The safe capacity of the channel under construction was 100,000 second feet, and the ultimate or calamity capacity was 125,000 second feet. The plan under execution in 1919 followed action by the Columbus City Council early in 1917, after a popular vote at the preceding November election had decided in favor of a \$3,500,000 bond issue. Contracts were awarded late in 1917 and early in 1918, and the enterprise was put under way under the direction of the Department of Public Service. The improvement of the Scioto River at Columbus was to give the largest capacity flood channel by excavation, levee construction and new bridges. The excavation was to be carried to the depth of the bed of the old channel except on the west side, between Broad and Rich Streets, where a bench averaging 150 feet in length was to be left from 2 to 3 feet above normal low water. The plan permits deepening the channel so as to increase the capacity some 20,000 second feet without further widening. The channel construction involved wrecking and clearing, excavating and levee building, a concrete spillway, retaining wall and weir, and concrete revetment. This work demanded the razing of some 200 buildings and the purchase of about 250 parcels of land. The excavation was chiefly on the west side of the river, and from the material heavy embankments or levees were built with a top width of 80 feet, on which would be laid out in the future a boulevard. The concrete construction involved the building of a levee spillway wall 1200 feet long and from 25 to 30 feet

high and of a shorter retaining wall running some 700 feet north from the Hocking Valley Railroad bridge, and of a concrete weir across the river at about the same point.

EAST ST. LOUIS PROJECT. For the removal of drainage waters and the control of storm waters through the lowlands on the east bank of the Mississippi River, Ill., opposite St. Louis, Mo., an important plan of protection works was prepared during the year and submitted to the East Side Levee and Drainage District. In this territory the land known as the American Bottoms underwent periodic flooding from the Mississippi River and from storm waters from numerous streams which flowed down from the heights on the eastern boundary of the bottoms. Accordingly the protection district of about 90 square miles was organized, and various works were built in the way of increased channels to carry off flood waters, together with a system of levees. This drainage district is remarkably valuable, as it includes a group of seven cities and extensive railway manufacturing interests, with about 90 per cent of its area in farm land, much of which is useless on account of insufficient drainage. The population in 1919 was about 140,000, and was increasing, so that it would reach 400,000 by 1950. The city of East St. Louis, Ill., in 10 years had become the second city in the State. The plan submitted in 1919 was devised to deal with storm waters from 81 square miles of drainage area in the hills and 99 miles of drainage from the bottoms, which ordinarily find outlet through Cahokia Creek and Prairie duPont Creek. The report recommends the drainage of the northern part of the district, the elimination of the nuisance from stockyard waste by the construction of a reinforced concrete conduit 6600 feet long to extend east from Cahokia Creek to the river, with three channels 12 feet in diameter, and a combined flow capacity of 2000 second feet. At the river end there would be controlling gates and a pumping station. For the southern section of the district it was proposed to enlarge and extend the existing main ditch, connecting it with two lakes and providing an outlet of 1000 second feet capacity through the Prairie du Pont levee near the St. Louis & Iron Mountain Railroad. At this point there would be a pumping plant having a capacity of 500 second feet. The estimated cost of these improvements was \$2,284,000, and the centrifugal pumps of the largest possible size would be used, operated by electricity. This report with map is summarized in the *Engineering News-Record* for Oct. 30, 1919.

COLORADO RIVER FLOOD PROTECTION. On the lower Colorado River, the Palo Verde Joint Levee District had completed by the summer of 1919 about 13 miles of new levee and had standardized work on the old levees. Quarries were opened for revetment work which was to be undertaken, and the district had voted \$1,285,000 for railroad track over the entire levee system totaling 34 miles in length. This was to be laid as part of the season's construction work after the river flood for the year had subsided. See also HURRICANES.

FLORIDA. POPULATION. The population of the State in 1910 was 752,619, while on July 1, 1919, it was estimated, by the Federal bureau, to be 961,569, a gain during the 12 months of 22,000. The State census of 1915 returned a total of 921,618.

AGRICULTURE. The following table is compiled from a report of the Federal Department of Agriculture, for December, 1919.

Crop	Year	Acreage	Prod. Bu.	Value
Corn	1919	840,000	12,800,000	\$17,840,000
	1918	800,000	12,800,000	17,864,000
Hay	1919	118,000	a 141,000	3,248,000
	1918	105,000	a 120,000	2,220,000
Peanuts	1919	126,000	3,402,000	7,178,000
	1918	153,000	5,202,000	8,011,000
Tobacco	1919	4,200	b 3,990,000	2,175,000
	1918	4,800	b 4,416,000	2,031,000
Potatoes	1919	24,000	1,824,000	8,880,000
	1918	35,000	3,500,000	7,000,000
Sweet Pota.	1919	41,000	4,100,000	5,740,000
	1918	36,000	3,960,000	4,950,000
Cotton	1919	117,000	c 17,000	3,570,000
	1918	167,000	c 29,000	6,324,000

a Tons. b Pounds. c Bales.

FINANCE. The report of the Treasurer of Jan. 1, 1920 shows the following facts concerning the financial condition of the State. Balance on hand, Jan. 1, 1919, \$1,861,628; receipts during the year, \$6,334,025; disbursements during the year, \$6,369,753; balance on hand, Dec. 31, 1919, \$1,825,899. The public debt consists solely of refunded bonds amounting to \$601,567, bearing interest at the rate of 3 per cent per annum, all of which are held by the Educational Funds of the State.

CHARITIES AND CORRECTIONS. The following are the institutions maintained by the State: Institute for the Deaf, Dumb, and Blind, at St. Augustine; Hospital for the Insane, at Chattahoochee; Industrial School for Boys, at Marianna; Prison Farm, at Raiford; Industrial School for Girls, at Ocala. On Dec. 31, 1919, the population of the Prison Farm was 463; the expenses for this institution during the year amounted to \$188,988.

JUDICIARY. Supreme Court: Chief Justice, Jefferson B. Browne; Associate Justices, James B. Whitfield, Thomas F. West, W. H. Ellis, R. F. Taylor.

OFFICERS. Governor, Sidney J. Catts; Secretary of State, H. Clay Crawford; Comptroller, Ernest Amos; Treasurer, J. C. Luning; Superintendent of Public Instruction, William N. Sheats; Auditor, J. Will Yon; Attorney-General, Van C. Swearingen. See CHILD LABOR.

TRANSPORTATION. The total mileage of the State was, in 1919, 3960; of this over 17 miles was constructed during the year. The chief roads are the Atlantic Coast Line, the Seaboard Air Line, and the Louisville & Nashville.

FLORIDA, UNIVERSITY OF. A State institution of higher education, at Gainesville, Fla. In the summer session of 1919 there were 612 students, and in the fall, 604. The faculty numbered 62. The Seminary Interest Fund is \$2064. The library contained 25,500 volumes. A new gymnasium was recently completed at a cost of \$25,000. President, Albert Alexander Murphree, LL.D.

FLOUR. See AGRICULTURE.

FOOD. See articles on agricultural subjects and FOOD AND NUTRITION.

FOOD AND NUTRITION. Food remained one of the world's great problems throughout the year. Its high cost was again a heavy burden in every civilized country, and in war-devastated Europe. While the months following the signing of the armistice brought relief and en-

couragement, the outstanding question was still the actual sufficiency of the food supply. War-time regulations and restrictions were removed to some extent, especially in the nations of western Europe, but despite unprecedented exports from the United States and other western nations conditions were far from normal. At the close of the year millions throughout central and eastern Europe, as well as in Armenia and other districts in Asia, were facing another winter under virtual famine conditions.

FOOD SITUATION IN THE UNITED STATES. For the United States the return of the American Expeditionary Forces from Europe eliminated the vital military problems of the war period. Despite the tremendous needs of Europe, the food supply of the nation was once more available, first of all for domestic use and, except for the one commodity sugar, no question arose as to its adequacy. The policy of food regulation was largely abandoned. The few restrictions remaining from the previous year were, for the most part, withdrawn early in 1919, and with the close of the fiscal year on June 30th, the Food Administration terminated its activities. The U. S. Grain Corporation and the Sugar Equalization Board, however, continued in existence throughout the year.

The popular expectation of material reductions in food prices failed of realization. Despite some fluctuations, notably on meats, *Bradstreet's* reported for July 31, 1919, an index figure for wholesale prices of 31 food articles 3.7 per cent higher than on Dec. 19, 1918, and the highest level on record. Some reductions were noted during the fall months, but on Dec. 19, 1919, its index number was still 0.6 per cent higher than on the corresponding date of the previous year. Wheat flour had increased during the year from \$10.75 to \$14.50 per barrel, potatoes from \$3.75 to \$5.50 per barrel, eggs from 66 to 80 cents per dozen, molasses from 76 to 97 cents per gallon, rice from 10¼ to 14 cents per pound, and raisins from 9¼ to 13 cents a pound. Pork, lard, cheese, beans, coffee, and tea were the principal foods to show decreases, and all these were under 15 per cent.

As regards retail prices, the developments were even more discouraging to the consumer. According to data collected by the U. S. Department of Labor in 50 cities, up to Dec. 1, 1919, the average family expenditures for the 22 principal foods increased 2 per cent during the month of November, 5 per cent during the entire year, and 84 per cent since November, 1913. During the six years studied, rice, bread, potatoes, corn meal, flour, lard, and sugar had increased over 100 per cent.

The disparity between wholesale and retail prices, and in particular the slowness with which the latter responded to reductions made by the wholesaler, was the subject of specially unfavorable comment. Thus, during the summer material cuts were made in the prices paid for cattle, yet the complaint was general that little if any relief resulted to the ultimate consumer in either homes or public eating-places. A similar situation was noted with coffee, reported at 15 cents per pound at wholesale Dec. 19, 1919, as compared with 17.25 cents on the corresponding date of the previous year.

Since the Department of Labor estimated that the average annual food expenditure per family for the 22 principal foods in 39 cities had risen

to \$638, and also that in the average family 38.2 per cent of all expenditures is for food, an economic problem of grave importance was presented to many thousands of families. This problem was further complicated by the even larger increases of the year in the cost of clothing, furniture, building materials, and other commodities, and led very naturally to widespread demands for increases in wages and salaries.

So serious did the question become that on August 8th President Wilson addressed a joint session of Congress on the high cost of living. In this he stated that the high prices demanded were "the talk of every domestic circle and every group of casual acquaintances even. It is a matter of familiar knowledge, also, that a process has set in which is likely, unless something is done, to push prices and rents and the whole cost of living higher and yet higher in a vicious cycle to which there is no logical or natural end." He dealt especially with food questions, pointing out that although for a number of the most important foods the supply in dry and cold storage in June, 1919, was 19 per cent greater than on the previous year, yet prices had risen. Thus, the stock of frozen fowls had increased almost 300 per cent, and yet the price had risen from 34.5 to 37.5 cents per pound. Butter increased in supply 129 per cent and in price from 41 to 53 cents per pound. Among the remedies suggested for the situation were the sale by the government of its surplus stocks of army food and clothing, the extension of the Food Control Act of 1917, the regulation of cold storage, and the requirement that all goods designed for interstate commerce should if practicable be marked with the price at which they left the hands of the producer.

The surplus food supplies of the army were offered to the public soon afterwards by sales through municipalities or municipal agencies, and subsequently direct to consumers through the Post Office Department, orders being taken at post offices and by carriers, and delivery being made by parcel post until late in September, when 25 retail stores were opened by the Quartermaster Corps. Sales were then made over the counter within the community and by mail order and parcel post delivery in the remainder of the sales district. Canned foods were among the principal commodities sold, the prices ranging from 15 to 25 per cent below the prevailing scales for comparable goods. The total sales reported to December 6th aggregated \$15,713,572.15, at an estimated operating expense of 8.5 per cent. This did not include the huge supplies overseas, which were sold to the French government as a whole for \$100,000,000. Thousands of individual families benefited by this undertaking, though its effect upon retail prices was problematical.

An act amending the Food Control Act became law October 22d. The provisions of this act were extended, chiefly by prescribing a penalty of a fine of not exceeding \$5000, imprisonment for not more than two years, or both, for individuals profiteering through hoarding, overcharging, willful destruction of necessities, or conspiracy in restricting their production or distribution. The administration of the act was assigned to the Attorney General, with a revival of food administrators in various States and other subdivisions and the appointment of local "fair price committees." These committees, usu-

ally made up of wholesale and retail dealers as well as representatives of the general public, were expected to formulate retail "fair price lists" as a basis for combating profiteering.

In a statement issued Dec. 22, 1919, the Attorney General announced that in 18 States, 179 prosecutions had been instituted for profiteering under the act and 99 seizures of goods made for hoarding. In two cases involving hoarding, jail sentences of three and five months, respectively, had been imposed in addition to fines.

A bill was passed by the House of Representatives, Sept. 30th, restricting the duration of cold storage of most foods for interstate commerce to 12 months. The completion of legislation along this line was again advocated in President Wilson's message of December 2d, as was also an extension of the Food Control Act of six months after the formal proclamation of peace and his previous recommendation of a requirement to mark all package goods with the cost price.

Legislation was also passed by Congress Dec. 20, 1919, authorizing the President to continue the U. S. Sugar Equalization Board (Inc.) during 1920, and to take such steps as would secure "an adequate supply and an equitable distribution of sugar at a fair and reasonable price to the people of the United States." This action followed several months of increasing difficulty on the part of the consumer in obtaining sugar, culminating in many sections of the country in a virtual suspension of retail sales. Among the many explanations suggested for this anomalous condition were an increased domestic consumption of sugar in the form of soft drinks and confectionery, failure of the government to take steps to purchase the 1920 Cuban sugar crop, as had been done the year previous, and the withholding of sugar from consumption for speculative purposes and sales to confectioners and other manufacturers of food products at prices higher than those prescribed for dealers supplying the general public. Greatly increased exports to Europe, totaling during July, August, and September, 1919, alone, 333,452,731 pounds, an amount nearly equal to the exports for the entire five-year period 1910-14, were believed by many to have been an appreciable factor in the situation. On the other hand, the sugar imports in September, 1919, of 708,638,554 pounds indicated that even with these large exports there should have remained a considerable quantity for local consumption.

Whatever the explanation, many thousands of householders experienced a shortage of sugar greater than at any time during the war. Home canning of fruits, energetically advocated by the government in 1918, was seriously impeded, although ways were shown by the Department of Agriculture and other extension agencies for canning without sugar. Sugar substitutes, such as honey, glucose, and corn sirup, were resorted to for cooking and table use in many families, and the Department of Agriculture also advocated the wider utilization of malt sugar sirup, derived from barley and other grains by a malting process. Warnings were issued, however, against the employment of saccharin, a coal tar derivative without food value and deemed by the Department a "menace to health."

The supply of flour, which continued under the jurisdiction of the U. S. Grain Corporation, proved ample for the domestic requirements and heavy foreign shipments, although there was a

rise in price during the year. In December the Grain Corporation reported that it had purchased 500,000 pounds of flour from soft red winter wheat for sale to the public through trade channels at the rate of 75 cents per 12 pound package.

A report of the Federal Trade Commission directed public attention to the wide extension of activities in recent years of the large packing houses. It was shown that many of these concerns were now dealing in wholesale groceries, meat substitutes, and many other commodities. Legal action was begun against these concerns, and in December a compromise was announced in which the five principal packers agreed to dispose, within two years, of their holdings in public stockyards, stockyard railroads and terminals, and cold storage warehouses except where necessary for their own meat products, to disassociate themselves permanently from the retail meat business and all their so-called "unrelated" lines, and in general to confine their trade to meat and provisions.

Considerable food legislation was also enacted by the States. Massachusetts appointed a special commission on the necessities of life, and prescribed penalties for conspiracy to maintain or increase the cost of such necessities. Illinois and Montana prohibited the willful destruction of food to influence market prices. Montana also provided a State Trade Commission with jurisdiction over foodstuffs and other commodities. Tennessee enacted a cold storage law and Pennsylvania adopted a new law. Several other States regulated various marketing practices, notably of eggs, meats, and bread.

FOOD SITUATION ABROAD. On Jan. 3, 1919, Mr. Herbert Hoover was appointed director general of an international organization of the Allied governments for the relief of liberated countries, both neutral and enemy. It was estimated that at least \$1,500,000,000 worth of food must be imported to meet the actual needs for the first six months of the year, including at least 20,000,000 tons of bread grains alone, as well as vast quantities of meats, fats, and other commodities. A tremendous problem was thus presented, further complicated by the limited shipping available, destruction of credits and rise in foreign exchange, inadequate internal transportation and distribution agencies, and many other factors. These difficulties were particularly serious among the newly-liberated peoples of Austria, Turkey, Poland, and Western Russia, and on February 24th following a cable message from President Wilson an emergency appropriation of \$100,000,000 was granted by Congress as a relief fund in these regions. The American Relief Administration was organized, also with Mr. Hoover as director general, for the disbursement of this fund. Many millions of dollars were also contributed by the American people for relief through charitable organizations in the devastated regions in France, Belgium, the Near East, and elsewhere.

Material benefits resulted from these and other enterprises, but none the less the situation with respect to food and clothing in Europe became increasingly important during the summer, as a result of failure to revive production on a sufficiently vigorous scale and an outbreak of extravagance as a reflex from the strenuous economy which had prevailed and a rise in the standard of living among large sections of the

working classes. A forceful statement by Mr. Hoover, published in British journals, pointed out that a return to normal conditions could not be expected until each country in Europe restored its pre-war production and modified its standards of living.

At the close of the year, following European harvests of approximately 80 per cent, Mr. Hoover estimated that from 15,000,000 to 20,000,000 persons in central and eastern Europe outside Germany faced starvation unless quick means could be devised for their assistance. The greatest immediate difficulty was that of credits, but he predicted that on Aug. 1, 1920, there would be no considerable carry over of food supplies anywhere in the world.

In Great Britain, restrictions were removed from most foods during the year, although rationing of meats was continued until November. Butter consumption was still restricted to 1½ ounces per person per week, and the corresponding sugar ration was reduced during the fall from 12 ounces to 8 ounces. Wholesale prices were still fixed for many commodities, and the Food Ministry continued to distribute all cheese, bacon, ham, lard, dried fruits, bread, butter, and cocoa. The cost of food in Great Britain is reported as slowly falling, for the first six months after the signing of the armistice, and then rising through the summer until by September it had returned to the highest war level and was about 133 per cent above July, 1914.

In Canada a Combines and Fair Prices Act was adopted embodying the principal features of an administrative order of Dec. 11, 1918, forbidding the undue accumulation or withholding from sale of any necessary of life or the selling of such necessities at unreasonable prices. Decrees were issued in France fixing official prices for foods and other commodities and requiring the posting of prices by retailers, hotel keepers, and others. The use of saccharin as a sweetening continued to be general. Food cards were still required in Switzerland, and in the spring of 1919 meatless days and other expedients were resorted to.

The cost of living was reported to have increased since the war began by 280 per cent in Belgium and 181 per cent in Sweden. Even in regions far removed from the seat of war food price increases were reported, such as about 100 per cent in Peru, 52 per cent in Australia, and 50 per cent in Netherlands and India. See also AGRICULTURE, LIVE STOCK, DAIRYING, and SUGAR.

FOOD CONTROL. See FOOD AND NUTRITION.

FOOD POISONING. During the autumn of 1919 an episode of botulinism occurred in Detroit in which the poisonous food was pickled olives. Attention was thereby directed to this rare and peculiar form of food intoxication, which is caused by the product of an anaerobic bacillus, the *Bacillus botulinus*, so called because the first cases described were due to the consumption of sausage. The remarkable features of this intoxication, aside from its deadliness, are the apparent sweetness and edible character of the food, at least in most episodes, and the delay in the appearance of the symptoms, which may amount exceptionally to several days. The bacillus itself is not pathogenic nor does it cause poisonous decomposition of the food. The toxic material is the secretion of the germ itself and hence the latter makes one of a group of three, the other two organisms to secrete a

similar poison being the bacilli respectively of diphtheria and tetanus. In the laboratory it is possible to antidote successfully the action of this poison by an antitoxin and if botulism should ever assume threatening proportions by wholesale attacks it could doubtless be antagonized with the same success as the other diseases mentioned and either aborted or cured. No class of food seems to be exempt from the possibility of conveying this poison, and among those thus far recorded are ham and sausage, canned beans, canned pears, pickled olives, etc. The toxin is easily destroyed by boiling heat and the custom of reheating all canned goods is therefore a salutary one. It is evident that poor technique of preservation is responsible for some of the cases, as deficient strength of brine in pickled foods which should be at least 6 per cent of sodium chloride. Sugar-preserved foods are less dangerous and a source of peril is seen in the present scarcity and high price of sugar which has led to other methods of preservation. Some of the recorded cases have been due to the now tabooed custom of tasting canned goods when first opened to determine their fitness for consumption. Space does not permit of an enumeration of the symptoms of botulism which are many and complex. They are to be found in reference works. This form of poisoning bears little resemblance to ordinary ptomaine poisoning and in some respects, such as late appearance and profound involvement of the nervous system, recalls some forms of mushroom poisoning.

FOOD PRODUCTION. See AGRICULTURE.

FOOTBALL. Football shared in large measure the boom that signalized all sports in 1919. The popularity of the game was particularly emphasized by the record attendance the contests attracted throughout the United States. Abroad the conditions attending soccer were the same, the number of spectators at the various matches being larger than ever before.

In American college football the elevens to make the best showing were Pennsylvania State College in the East; the University of Illinois in the Middle West; Centre College in the South, and the University of Oregon in the Far West. Four teams went through the season without sustaining a single defeat. They were Harvard, Centre, Stevens Institute, and the University of Notre Dame. The closest call Harvard had was the game with Princeton which resulted in a tie.

A noticeable feature of the football year was the strong showing made by the elevens representing the smaller institutions. This was primarily due to the development of the so-called "open game" among the little fellows, clever use of the forward pass enabling them to overthrow teams possessing much more weight than they. Colgate University with a small number of students to draw from yet turned out an eleven that defeated Princeton, Cornell, and Brown. Boston College also caused a big upset by vanquishing Yale.

Walter Camp, often referred to as the "Dean of Football," made the following selections for his All-American eleven:

Ends, Higgins, Pennsylvania State, and H. Miller, University of Pennsylvania; tackles, West, Colgate, and Henry, Washington and Jefferson; guards, Alexander, Syracuse, and Youngstrom, Dartmouth; centre, Weaver, Centre College; quarterback, McMillan, Centre College; half backs, Casey, Harvard, and Harley, Ohio

State University; fullback, Rodgers, West Virginia University.

A summary of the games played by the leading college teams in 1919 follows:

Pennsylvania State 33, Gettysburg 0; Penn State 9, Bucknell 0; Penn State 13, Dartmouth 19; Penn State, 48, Ursinus 7; Penn State 10, Pennsylvania 0; Penn State 20, Lehigh 0; Penn State 20, Cornell 0; Penn State 20, Pittsburgh 0.

Harvard 53, Bates 0; Harvard 17, Boston College 0; Harvard 35, Colby 0; Harvard 7, Brown 0; Harvard 47, Virginia 0; Harvard 20, Springfield Y.M.C.A. College 0; Harvard 10, Princeton 10; Harvard 23, Tufts 0; Harvard 10, Yale 3.

Colgate 34, Susquehanna 7; Colgate 14, Brown 0; Colgate 21, Cornell 0; Colgate 7, Princeton 0; Colgate 7, Dartmouth 7; Colgate 21, Rochester 0; Colgate 7, Syracuse 13.

Dartmouth 40, Springfield Y.M.C.A. College 0; Dartmouth 13, Norwich 0; Dartmouth 27, Massachusetts Aggies 7; Dartmouth 19, Penn State 13; Dartmouth 9, Cornell 0; Dartmouth 7, Colgate 7; Dartmouth 20, Pennsylvania 19; Dartmouth 6, Brown 7.

Syracuse 27, Vermont 0; Syracuse 7, U. S. Military Academy 3; Syracuse 24, Pittsburgh 3; Syracuse 0, Washington and Jefferson 13; Syracuse 13, Brown 0; Syracuse 14, Rutgers 0; Syracuse 9, Bucknell 0; Syracuse 13, Colgate 7; Syracuse 6, Indiana 12; Syracuse 0, Nebraska 3.

Princeton 28, Trinity 0; Princeton 9, Lafayette 6; Princeton 34, Rochester 0; Princeton 0, Colgate 7; Princeton 0, West Virginia 25; Princeton 10, Harvard 10; Princeton 13, Yale 6.

Pittsburgh 33, Geneva 0; Pittsburgh 26, West Virginia 0; Pittsburgh 3, Syracuse 24; Pittsburgh 16, Georgia Institute of Technology 6; Pittsburgh 14, Lehigh 0; Pittsburgh 7, Washington and Jefferson 6; Pittsburgh 3, Pennsylvania 3; Pittsburgh 17, Carnegie Tech 7; Pittsburgh 0, Penn State 20.

West Virginia 61, Marietta 0; West Virginia 55, Westminster 0; West Virginia 0, Pittsburgh 26; West Virginia 27, Maryland 0; West Virginia 60, Bethany 0; West Virginia 25, Princeton 0; West Virginia 6, Centre College 14; West Virginia 30, Rutgers 7; West Virginia 55, Ohio Wesleyan 6; West Virginia 7, Washington and Jefferson 0.

Stevens Institute of Technology 6, Haverford 0; Stevens 37, Connecticut Aggies 0; Stevens 31, Rhode Island 3; Stevens 13, Rensselaer 0; Stevens 13, Columbia 0; Stevens 24, New York University 3; Stevens 62, Worcester Tech 0.

Pennsylvania 16, Bucknell 0; Pennsylvania 54, Pennsylvania Military College 0; Pennsylvania 89, Delaware 0; Pennsylvania 55, Swarthmore 7; Pennsylvania 23, Lafayette 0; Pennsylvania 0, Penn State 10; Pennsylvania 19, Dartmouth 20; Pennsylvania 3, Pittsburgh 3; Pennsylvania 24, Cornell 0.

Washington and Jefferson 23, Kiski 0; Washington and Jefferson 20, Carnegie Tech 0; Washington and Jefferson 16, Westminster 0; Washington and Jefferson 13, Syracuse 0; Washington and Jefferson 6, Pittsburgh 7; Washington and Jefferson 14, Bethany 0; Washington and Jefferson 33, West Virginia Wesleyan 0; Washington and Jefferson 0, West Virginia 7.

Yale 20, Springfield Y.M.C.A. College 0; Yale 34, North Carolina 7; Yale 3, Boston College 5; Yale 37, Tufts 0; Yale 31, Maryland 0; Yale 4, Brown 0; Yale 6, Princeton 13; Yale 3, Harvard 10.

Centre College 95, Hanover 0; Centre 12, Indiana 3; Centre 57, St. Xavier 0; Centre 69, Transylvania 0; Centre 49, Virginia 7; Centre 14, West Virginia 6; Centre 56, Kentucky 0; Centre 56, DePauw 0; Centre 77, Georgetown College 7.

Illinois University 14, Purdue 7; Illinois 9, Iowa 7; Illinois 10, Wisconsin 14; Illinois 10, Chicago 0; Illinois 10, Minnesota 6; Illinois 29, Michigan 7; Illinois 9, Ohio State 7.

The soccer team of the Bethlehem Steel Company for the second successive year won the championship of the United States through its defeat of the Paterson F.C. of New Jersey in the final game by a score of 2 to 0. The Bethlehem eleven made a tour of the Scandinavian countries during the year and returned with a record of 7 victories, 5 draws, and 2 defeats.

The teams representing Stockholm and Gotheburg were the only ones to overthrow the Americans. Among the United States college elevens the University of Pennsylvania again carried off the championship laurels in a series of games with Harvard, Yale, Princeton, Cornell, and Haverford.

FOREIGN EXCHANGE. See FINANCIAL REVIEW.

FOREIGN TRADE. See FINANCIAL REVIEW; UNITED STATES, and articles on foreign countries.

FOREST FIRES. See FORESTRY.

FORESTRY. The forest fire situation was even more serious than in 1918 though far less disastrous to human life. Before the end of June, the worst fire season ever faced in the Northwest and in adjacent Canada had begun. It continued well into September resulting in a heavy loss of timber and young growth. The emergency expenditures for fire fighting in western Montana and northern Idaho National Forests came to more than 10 times the regular protective funds provided for the same forests. The situation was worse in these States than elsewhere, although 200,000 acres of watershed forest, of great importance in maintaining the water supply of Los Angeles, was burned over. Over 500,000 acres were burned over in northern Michigan. Preliminary estimates made by the United States Forest Service indicate that up to September 30th, about 1,000,000 acres of National Forest land and 500,000 acres of private land was burned over. Government fire fighting expenditures from July 1st to September 30th were nearly \$3,000,000. Eastern Canada reported a serious season, with heavy losses in Ontario. The Prairie Provinces also suffered severely. Forest fire losses in British Columbia approximated \$1,000,000. Late in the year a forest fire wiped out a cork forest of over 20,000 acres in France between Toulon and Nice.

Through a cooperative agreement between the U. S. War Department and the U. S. Forest Service, airplane patrol was conducted over the National Forests, mainly in California. The service was started in June and further developed as the season progressed. Beginning September 1st, approximately 16,000,000 acres of National Forests, and incidentally 5,000,000 acres of privately-owned timberland were covered twice each day. At the close of the season, the officials of the Forest Service stated that the record made by this service had proved beyond question the effectiveness of the airplane as an aid in discovering and locating fires. The effective dis-

covery radius at 5000 feet is at least 30 miles. The seaplane patrol of the St. Maurice Forest Protective Association in Quebec was found to be entirely practical.

FORESTRY AS A PRIVATE INDUSTRY. Doubtless the most discussed forest problem in 1919 was that of the waning timber supply and means of conserving and extending it. Summing up the opinions expressed by leading foresters in various countries, there is a crying need for legislation that shall encourage forestry as a private industry. Reafforestation by government agencies alone will not be sufficient to offset the constantly increasing demands on the world's timber supply. Nowhere is this more evidenced than in the United States where 97 per cent of the timber and other wood products are obtained from private forests, and where private owners hold four-fifths of the standing timber of the country. It is the best and most accessible timber and comprises nearly the entire supply of such important commercial species as Eastern white pine and spruce, Southern pine, cypress, redwood, and most of the hardwoods. Most of these private holdings are not reafforested after being cut over, since the forest taxation laws combined with the risk involved have rendered private forestry an unattractive industry. To meet this situation various State authorities, forest organizations, and institutions, as well as the leading lumber interests of the country held many conferences in 1919 with the view of bringing about permanent forest production on all lands which are better adapted to forestry than other purposes. The United States Forester was requested to draw up a policy of forestry for the nation, providing for the co-operation of federal, State, municipal, and private agencies in seeking the protection and beneficial utilization of our present forest resources, the renewal of forests on lands not needed for agriculture and settlement, the stability of forest industries, and of satisfactory conditions for forest workers. A strong movement was also launched in France, seeking the development of a policy that would promote private as well as national forestry, and would also provide for the rational exploitation of colonial forests. Great Britain took a definite step toward the development of a reafforestation policy.

LEGISLATION. The Forestry Bill passed by the Parliament of Great Britain in August provides for the appointment of a Central Forestry Commission, consisting of eight commissioners who shall be responsible for the forest policy in Great Britain and Ireland. It also provides for the afforestation of 1,750,000 acres in 80 years, 250,000 acres to be planted in the first 10 years at a cost not exceeding £3,500,000. The Ontario government passed an act providing that the Lieutenant-Governor in Council may declare any suitable land a "private forest reserve" upon the recommendation of the Minister of Lands, Forests, and Mines, and with the consent of the owner. The land so classed must always remain a reserve. It will receive government protection, and trees will be furnished the owner for reafforestation purposes. In the United States the Post Office Appropriations Act made available \$9,000,000 for roads and trails within or partly within the National Forests, and \$600,000 were provided under the Agricultural Appropriation Act for the purchase of additional watershed land. Pennsylvania amended the act es-

tablishing the Department of Forestry, and created a State Forest Commission, composed of the Commissioner of Forestry and four other members appointed by the Governor. The Commission is empowered to acquire land for State forests by condemnation proceedings, appoint scientific assistants and other employees, and publish the results of forestal investigations and inquiries. Oregon and California provided for the fining of citizens who refuse to help fight forest fires. All State lands in Alabama were declared forest reserves and game refuges. Minnesota established a Board of Control empowered to issue bonds to meet forest fire emergencies. Montana established a closed season for burning brush with a permit. Certain Indiana cities were authorized to establish and maintain memorial forests.

NATIONAL FORESTS. The net area of the National Forests on June 30, 1919, was 153,933,700 acres, as compared with 155,374,602 acres June 30, 1918. Of the decrease, the work of land classification was responsible for 1,031,007 acres. With the completion of this work in sight, there is now a prevailing tendency in the public-land States of the West to extend the area of the forests. Public-land additions for the year ending June 30th amounted to 39,234 acres and there were pending in the Interior Department proclamations providing for public land additions totaling 283,780 acres. Also there was legislation pending in Congress, where the States must obtain consent, for public land additions to the forests approximating 1,700,000 acres. By the act of Feb. 26, 1919, the Grand Canyon National Park was created. For this purpose, 606,720 acres were transferred from the Kaibab and Tusayan National Forests. Increase of the National Forests in the East through purchases continued at a conservative rate. The total net area of public land in the National Forests established from purchase areas now aggregates 1,347,666 acres. In addition 396,493 acres have been approved for purchase by the National Forest Reservation Commission.

The total receipts from the National Forests for the year ended June 30, 1919, were \$4,358,414, an increase over 1918 of \$783,484. To this total, the grazing business contributed \$2,609,169; the timber business, \$1,540,099; special uses and water power development about \$209,144. The cost of operating the forests again approximated \$4,000,000, exclusive of emergency fire control costs.

FORESTRY IN HAWAII. The Territory of Hawaii has officially brought within forest reserve boundaries all the land that it is deemed necessary to maintain permanently under forest cover "to safeguard a continued and steady supply of water for the use of agricultural and domestic pursuits in the Territory." The total area of the 47 forest reserves is 814,926 acres, or approximately 20 per cent of the total area of this entire group of islands. Fencing of the boundaries and the eradication of wild stock is actively going on. Fire protection is not a large factor in Hawaii. In the extension of forest areas through planting, the Koa (*Acacia koa*) is the species most used, but much interesting work is also being done in the experimental planting of trees from many parts of the world. Eucalypts are being extensively planted on private lands, chiefly on sugar plantations. Territorial forest nurseries are maintained on three islands

to supply demands for stock amounting to over 300,000 seedlings a year. The trees are sold at cost for private planting. The Hawaiian Sugar Planters' Association has established a Division of Forestry, which will cooperate with the Territorial forester in the proper care of certain of the forest reserves.

KILN DRYING OAK FOR VEHICLES. One of the distinct developments of experiments conducted at the Forest Products Laboratory at Madison, Wis., during the war was a rapid method of seasoning oak. It requires from two to three years to air season heavier oak wagon stock. Better stock has been secured by drying this heavy green oak according to Forest Service recommendations, and the time for 3-inch material green from the saw is reduced to 90 or 100 days. Three large plants using this system had negligible losses, as compared with losses at plants using other methods, which ranged from 10 per cent up to complete loss.

NEW MATERIALS FOR PAPER MAKING. At the time the armistice was signed the U. S. War Department had on hand a large tonnage of second-cut cotton linters reserved for the manufacture of nitrocellulose. Commercial pulping trials and paper runs made with these linters and cotton hull shavings at the Forest Products Laboratory demonstrated that these materials can be pulped with decidedly less chemical and bleach consumption than wood, and that they are excellently adapted for the production of high-grade book, writing, blotting, tissue, and other papers. It is believed that these experiments may have a far-reaching economic influence on the future of the paper supply in the United States, and arrangements have been made for a demonstration on a tonnage basis under average mill conditions.

INSTITUTIONS, PERSONNEL, ETC. A Chair of Forestry is to be established at the University of Edinburgh with an endowment of £14,000. The Mexican government has established a National Forestry School at Coyoacan, Federal District. A forest biological station was authorized by the New York Legislature, with headquarters at the College of Forestry at Syracuse University. It will be known as the Roosevelt Wildlife Forest Experimental Station. The principal object will be to study the habits, life histories, methods of propagation and management of fish, birds, game, and food and fur-bearing animals and forest wild life. The station did not receive a State appropriation, but work will be started at once with college funds under the directorship of Charles C. Adams. A new department of Forest Recreation was established at the New York State College of Forestry, with Prof. H. R. Francis in charge. The name of the College of Forestry at the University of Washington has been changed to the College of Forestry and Lumbering, and the work has been broadened out to include almost every aspect of the lumbering industry. The laboratory of forest pathology of the Bureau of Plant Industry of the U. S. Department of Agriculture has been transferred from Missoula, Montana, to Spokane, Wash., where permanent quarters have been provided. Dr. B. E. Fernow has retired from the deanship of the Faculty of Forestry, University of Toronto, and has been made Professor Emeritus. Mr. R. S. Troup, assistant inspector-general of forests, India, has been elected professor of forestry at Oxford. The *Australian Forestry Jour-*

nal is being issued quarterly under the direction of the Forestry Commissioners of New South Wales. The New York State Forestry Association has begun the publication of a quarterly journal under the title *New York Forestry*.

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FORGET, SIR RODOLPHE. Canadian financier, died at Montreal, February 20. He was the president of the Quebec and Saginaw Railway and various important companies and was partner in L. G. Forget and Company from 1882 to 1897. He was the founder of the institution which bears his name in 1907.

FORMOSA, or TAIWAN. A Japanese island situated off the coast of the Chinese province of Fukien. Capital Dai-hoku (or Taipei). Area, 13,839 square miles. Population, estimated in 1917, 3,650,047 (1,899,128 males and 1,750,919 females). The chief towns are Taihoku (102,249 inhabitants); Tainan, Kagi, and Taichu. The chief agricultural produce is rice, while sugar cane, tea, sweet potatoes, jute, indigo, and rami are grown.

The forests yield camphor, which is a government monopoly. Among other industries are sugar manufacture, flour milling, tobacco, oil, spirits, iron work, bricks, glass, and soap. There are also valuable fisheries. The number of animals is estimated as follows: Sheep, 90; goats, 14,000; cattle, 130,000; caribou, 280,000. The production of centrifugal sugar in 1917 was about 978,176,676 pounds. Minerals in 1919 received an upward stimulus in production, though exact statistics are not at hand.

The commerce of Formosa is largely with Japan. The chief foreign countries with which there is traffic are China and the United States. In 1917, the imports amounted to 88,843,879 yen; exports, 145,712,683 yen. The chief exports in 1917 were sugar, 15,775,205 yen; tea, 4,492,860 yen; and camphor, 4,628,638 yen.

The revenue for 1918-19 was estimated at 55,261,429 yen, which balanced an equal expenditure. Communication and public works are the main items of expenditure, and inland taxes, customs, and government enterprises provide the main revenue. A subvention from the Japanese government of 5,000,000 to 9,000,000 yen annually further augments this amount. In 1917 there were 319 miles of railway open, and over 974 miles of private railway. In that year there were 159 post offices and a telegraph service that had 165 offices and a length of wire of 1181 miles, while the telephone service had 385 miles. At the end of 1917 the post office savings

bank had 292,851 depositors, with 3,935,091 yen to their credit. The current coinage in the island is that of Japan.

Many improvements have been innovated by the Japanese administration, including a wide educational programme that is conducted in the Japanese language. The cession of the island to Japan by China was effected by the treaty ratified on May 8, 1895, Japanese civil government in the island commencing on March 31, 1896. The island is governed by a Japanese Governor-General.

FORTY-EIGHT, COMMITTEE OF. A committee of representatives from the 48 States of the union organized for the purpose of (1) organizing a conference of Americans interested in a thoroughgoing programme of fundamental reconstruction; (2) presenting to such a conference a tentative platform dealing with political, social, industrial, and international reconstruction; (3) discussing at the conference the possibility of forming a political party, forming a coalition with other political parties, creating an organization to translate liberal conviction into political action, and accepting such other analogous suggestions as are presented by delegates to the conference. The conference was held in St. Louis on Dec. 9-12, 1919. The chairman of the executive committee is J. A. H. Hopkins; secretary, Allen McCurdy; and treasurer, William F. Cochran. Headquarters are maintained at 15 E. 40th Street, New York City. See UNITED STATES.

FOSTER, SIR GEORGE. Canadian representative at the Paris Peace Conference. He was born in Canada and entered the Canadian House of Commons in 1882 as representative from New Brunswick. In 1885 he was appointed to the ministry, holding the portfolio of Marine and Fisheries. After the election of Sir Robert Borden he became Minister of Trade and Commerce, which portfolio he was holding at the time of the Peace Conference.

FOX, JOHN, JR. Novelist, died at Big Stone Gap, Va., July 8th. He was born in Bourbon County, Ky., in 1863, graduated at Harvard in 1883. Among his works may be mentioned the following, some of which gained a wide reputation: *A Mountain Europa* (1894); *A Cumberland Vendetta* (1895); *Hell-for-Sartain* (1896); *The Kentuckians* (1897); *Crittenden* (1900) *Bluegrass and Rhododendron* (1901); *The Little Shepherd of Kingdom Come* (1903); *Christmas Eve on Lonesome* (1904); *Following the Sun Flag* (1905); *Knight of the Cumberland* (1906); *Trail of the Lonesome Pine* (1908); *The Heart of the Hills* (1913).

FRANCE. The westernmost state of central Europe between 42° 20' and 51° 5' N. latitude, and 7° 45' E. and 4° 45' W. longitude, separated from England by the Channel and the Straits of Dover; area, 207,054 square miles. It is divided for administrative purposes into 87 departments including the island of Corsica, but not including Alsace-Lorraine, which was regained by the treaty with Germany and was re-incorporated in the French administrative system. See ALSACE-LORRAINE.

POPULATION. Before the war (census of 1911) the population was 39,602,258, an increase of only about 350,000 since 1906. (For details of population by departments, chief cities, and other statistics based on the census of 1911, see YEAR BOOK for 1917 and preceding years.)

Paris, the capital, had a population before the war of 2,888,110.

After the war the discussion of the birth-rate which has always been a troublesome question was renewed with especial vigor on account of the enormous losses, namely: over 1,500,000 killed and a still larger though indeterminate number injured and incapacitated for work. The birth-rate had been declining before the war. In 1913 births had fallen off by 275,000. In 1911 the births were only 742,000 against 1,870,000 in Germany, 1,630,000 in Austria-Hungary, 2,700,000 in Japan, and 1,093,000 in Italy. Thus against the German-Austrian combination of 3,500,000, France would have only about one-fifth of the number and this was not counting Bulgarians and Turks and other hostile races. Various plans for increasing the population were proposed, as, for example, better housing for families with children; means of lightening the expenses incident to births; cheap dwellings to be reserved for large families of children; a heavier tax on the unmarried; and pensioning of widows. Some campaigning was done for attention along these lines by the so called National Alliance; but this did not apply to the country districts which were from the point of view of repopulating France the most important. Contrary to the usual opinion, it was said that the large families in Paris were generally to be found among the well-to-do, and even very wealthy classes. The French Academy had for a long time offered premiums to large families and the amount thus distributed would reach in 1920 the sum of 2,341,000 francs a year. Such a measure was recognized as good, but of very limited application.

In 1918 an official inquiry under the direction of the ministry of the interior was conducted into the loss of life in the invaded districts during the war. Owing to the disappearance of the civil records in most of the cities and villages, it was impossible to ascertain the exact number of persons who had been shot, mutilated, starved to death, or succumbed for other reasons relating to war conditions, but from many signs the figure appeared to be a high one. The small town of Orchies with 5000 inhabitants, for example, had been deliberately burned house by house in a single day by means of the pastilles invented by the German chemist, Ostwald. It was naturally impossible to determine the number of the dead or the fugitives who had perished along the routes while they were fleeing, and had been buried without any indication of their identity. It was the same way with many other villages, such as Douai, Cambrai, St. Quentin, etc., and for innumerable villages whose population had been driven to the frontier by the German soldiery. The loss of population, owing to the falling off of the birth-rate was also beyond the means of accurate calculation, but may be indicated by the following figures supplied by the city authorities of Lille: In 1913, the number of births was 4835; in 1914, 4541; in 1915, 2154; in 1916, 644; 1917, 602; 1918, 609. This gave a deficit during the period of 15,000 births for a population of about 200,000. Investigation was made in Lille into the extent of disease among the young, and careful examinations were held in all the schools, both public and private, in order to ascertain the proper food regimen for the children whose development had been retarded by famine. Out of 18,036 those in public

and private schools in Lille, in the period following the armistice about 8000 were placed in hospitals, or sent to colonies of convalescence by the authorities in charge of the liberated regions. This investigation in Lille brought out the fact that 60 per cent of the children had been checked in their physical development by the conditions of the war, and that about 40 per cent showed signs of tuberculosis or pulmonary weakness. In one school inspected in March, 1919, only one normal child was found out of 210 that were examined and of the rest 163 were victims of deformities or diseases of various kinds; 139 were suffering from swollen glands, 42 from rickets, and 6 from tuberculosis. It was asserted that in this district during the war not a drop of fresh milk had been distributed to children, or to sick persons during four years, that the average food ration had never exceeded for an adult 1600 calories a day, and that the general death rate from 1914 to 1918 had doubled.

EDUCATION. Primary education is free and compulsory for all children between the ages of 6 and 13. No later figures for education are available than those given in the preceding **YEAR BOOK.**

A project in the field of higher education that attracted much attention during the year was the establishment of a "College of the United States" at Paris. Under this name an institution was to be set up not unlike the colleges grouped around the Sorbonne in the Middle Ages which drew students from all countries. Its main object was to direct to France the sort of American students and specialists who had in the past studied in Germany. The French were struck by the extraordinarily large number of Americans that they encountered during the war who had received degrees from German universities. Groups of persons interested in education and at the same time in the promotion of closer relations between the two countries had worked to this end for many months past. A beginning was made in 1919 by throwing open certain courses and providing certain facilities for Americans. Several directors of laboratories in France, including Madame Curie and other eminent specialists, announced their readiness to coöperate with the college. A pamphlet was issued by the dean of the faculty of medicine giving complete information in regard to medical courses, etc., clinics, laboratories, etc., for distribution in English for all the universities in the United States, and it was arranged that in October there should be Bureaus of Information at points of departure in the United States and of arrival in Paris, where all necessary details could be ascertained. This was but one step in the direction of a closer intellectual alliance. It was further intended to establish an American library in Paris which would enable the French to realize and keep abreast of what was being done in America; also the organization of lectureships to popularize recent progress in France; translation into the French language of the best American scientific works, etc.

On November 3d it was announced that the referendum on the part of the associations of professors in normal schools, and of male and female teachers had given a strong majority against the plan for union with the General Federation of Labor, and it was said at the same

time that the referendum of college professors had the same result.

AGRICULTURE. The area and production of principal crops in 1917 are shown in the following table:

Crop	Area (1,000 acres)	Production (metric tons)
Wheat	10,260	8,928,100
Mixed corn	280	87,900
Rye	2,025	698,900
Barley	1,610	861,800
Oats	17,700	8,466,800
Potatoes	8,589	10,922,080
Beetroot, sugar	177	2,108,600
Tobacco	18	22,627

According to the customs returns the wine production for 1918 was 42,264,136 hectolitres, as compared with 36,103,894 for 1917. The wine yield of Algeria in 1918 was 6,343,101 hectolitres, as compared with 6,233,069 in 1917.

Some details of fruit production in 1917 are as follows: Cider apples, 3,486,560 metric tons; table apples, 214,122; table pears, 84,030; chestnuts, 133,090; walnuts, 41,793; olives, 170,600; peaches, 29,498; cherries, 30,234; plums, 29,791.

Farm animals in 1917 were as follows: Horses, 2,282,560; cattle, 12,443,304; sheep and lambs, 10,586,594; pigs, 4,202,280; mules, 150,115; asses, 324,580.

Total value of silk production in 1916 was 11,878,352 francs.

The eight hour law voted by the Chambers in the summer applied only to industries and not to agriculture. The question whether an eight hour law would benefit agriculture was under discussion before the national Agricultural Congress in Paris during August. There were 500 agricultural delegates assembled from all quarters of France. As to the working day the meeting declared that any limitation of hours would involve a corresponding reduction of output and a corresponding increase in price. This was the unanimous opinion of the Congress. The reasons given were as follows: The effect would be two-fold; it would increase the cost of living and it would oblige France to purchase at higher prices the essential food products. The Congress specifically voted against any legislative measure which would limit the hours of labor in agriculture.

Another topic of especial interest in the discussion of agricultural conditions in France was the question of small proprietorships. In the French Chamber there was much enthusiasm expressed for the further division of the cultivable land and the parliamentary orators were loud in their praise of small peasant proprietorship. But objection was raised to the carrying out of this policy that it would require large advances from the government and the government was in no position to incur these obligations. Creating new proprietors was not the simple thing that it appeared to be. Large bodies of capital were necessary for the purpose. Merely placing land at the disposal of cultivators accomplished nothing unless accompanied by means of supplying implements, fertilizers, stock, seed, and a sufficient capital to wait until the returns came in; and if large properties were cut up it would mean the construction of buildings for the several proprietors, houses, stables, sheds, wells, etc. It was argued that millions would be required for these purposes. It was estimated in 1919



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WESTERN EUROPE ACCORDING TO THE PEACE TREATIES OF 1919

that more than 2,000,000 farmers in France cultivated their own land and that more than 500,000 agricultural laborers were the owners of small bits of landed property. According to reports of 1919 the French peasant had greatly enriched himself as a result of the war. During the war and afterwards the agricultural class had effected a large saving in spite of the lack of man power and the heavy taxation. The extremely high prices enabled them to save the money, and the reports of various offices of registry showed extraordinary increase in the number of purchases by the farmers. The paying off of mortgages and the acquisition of land proceeded on a much larger scale than before. It appeared that peasant proprietorship was developing and that the agricultural class were acquiring ownership of the land. The division of landed estates as a result of the war furthered this process. The phenomenon was commented upon by the Socialists as indicating the probable increase of the conservative spirit of the peasants. There was much discussion during the year of improvement in agricultural conditions as well as in the industrial field. It was pointed out that under proper encouragement France was capable of producing far more than before the war. Complaint had been made of the small output per acre in France, and it was said that no such progress had been made in the raising of cereals or potatoes as in the neighboring countries. In the 40 years preceding the war countries adjacent to France, that at first had hardly been her equals, had ended by surpassing her. Various reasons were given for this, among them that the cultivable land was cut up into too small portions, that various fertilizers were lacking, that there was a deficiency of man power, of capital, of credit, etc. Nevertheless it was believed that by means of technical education, new methods of culture, and experimentation, France might make rapid progress. Among measures recommended in 1919 was the intensive culture of beet root. It was pointed out that if France in 1913 had been able to secure an output from the soil equivalent to that of other countries, she would have been able on the basis of land actually sown and at prices actually obtained in the world's market, to export 3,000,000,000 francs' worth of cereals and at the present time on account of the rise of price this figure would be tripled. But the cereals were not by any means the only possibility. Besides beet root, already mentioned, there was the peanut and oil palm, which could be obtained in great quantities from West Africa. Oil, grease, margarines, soaps could be extracted without impairing the nutritive value for cattle feeding. There was a great opportunity for butter and cheese, and as to fruits, the valleys of the Loire and Rhone could produce the finest fruits in the world. In this field it was urged that a more skillful system of packing and transport of fresh fruit, and of preservation and storage should be devised. It appeared unreasonable that England should actually hold the French market with her preserves, when she had to import the fruits and the sugar, and that France should be obliged to sell preserves of California peaches. It seemed not to be a question of man power, for in this particular field, women's work was effective. The production of vegetables also offered possibilities. In parts of the country where experiments had been tried, the soil had increased 10

fold in value as a result of raising vegetables. It was argued that proper means of preservation, as for example the drying of potatoes, would lead to an increased utilization of 25 per cent. The raising of poultry was also in a backward state and here too the work of women would be an important factor. Before the war the sale of meat abroad was insignificant. France had excellent stocks of cattle and it was argued that by means of cold storage great improvements could be made. Sheep from Algeria and cattle from the Sudan were destined in a few years to bring a large supply to the domestic market and set free for exportation the fine breeds of French cattle. Much was expected from fisheries on the coast. The fresh water fish had practically disappeared, in spite of the former abundance. Other avenues suggested were floriculture, apiculture, and especially wines and liquors. See AGRICULTURAL EXPERIMENT STATIONS.

MINERAL PRODUCTION. During the war France was cut off from her main sources of mineral production. Complete statistics of output were not available for years following 1913. In that year the figures on the leading mineral and metal products were as follows in metric tons: Coal and lignite, 40,844,218; iron ore, 21,917,870; pig iron, 5,207,307; finished iron and steel, 406,000; worked steel, 3,186,050. The coal output in 1917 was 28,960,000 tons.

It was reported in November that the coal situation, though serious, was not desperate because of the substitutes which had been found. The Ministry of Industrial Reconstruction announced in spite of the difficulty of supplying Paris and its suburbs the government had already realized about 70 per cent of the programme that it had undertaken. A commission in session at that time under the Ministry of Public Works considered the question of substituting petroleum compounds, especially mazout, for part of the necessary coal. Experiments were being made with mazout as a fuel for running elevators, and for water works. The two important plans under consideration: First, the substitution of mazout and other thick oils, or petroleum, for coal as fuel; and on the other hand, immediate changes in the mechanism necessary for the heating of boilers by these oils instead of by coal. At a meeting of the Ministry it was decided that oils should be substituted as soon as possible for coal in great industries and in the public services; that a progressive programme for the necessary changes in machinery should be formed at once; and that a system of national supplies of fuel oils should be organized for a period of at least five years, and coördinated with the programme of coal, exports and imports.

The discovery of the iron resources of the Briey Basin in 1895 made France one of the richest countries in the world in respect to that metal. In spite of the lack of coal France could maintain the fourth place in the world production, that is to say, next after United States, Germany, and England, which are far better off in regard to resources, and in 10 years, that is to say, from 1903 to 1913, France had doubled her output which at the latter date reached 5,207,000 tons and was on the point of increasing by a million tons. This was due largely to the organization of the industry under the so-called Comptoirs and the Committee of

Forge-masters. Under the former the producers were grouped for the purpose of organizing production, standardizing types, avoiding interruption of work, etc., to the advantage of employers and employees alike, and they had not the tyrannical features either of the American trusts or of the German cartels. The limit on the output of the respective plants was revisable every three years. The Committee of Forge-masters was founded 50 years ago and comprised the producers and smelters whose interests were sometimes opposed. It became a professional association under the law of 1884 and its policy was to develop man power and to improve equipment. It had promoted the coke industry along with the metal-working industry, and it had applied a part of its resources to the search for coal beds in France and elsewhere. France, however, was dependent on Germany for coal and Germany was not on the other hand dependent on France for mineral ores, in spite of the prevailing opinion to the contrary, because there was a rich supply in the Lorraine field then in her possession, as well as in parts of Bavaria. At the beginning of the war the government appealed to the Committee of Forge-masters for coöperation, and the Committee responded to the call. During the five years that passed, its work for the government was of the highest possible value and in one sense may be said to have saved the country. Early in the war the department of Meurthe-et-Moselle which alone contributed 90 per cent of the steel and iron products was invaded, and out of 170 blast furnaces 85 fell into the hands of the enemy; out of 164 Martin ovens, 48; and out of 100 converters, 53. Down to the autumn of 1918 France had been deprived of 64 per cent of her gas products and 62 per cent of her steel products. In spite of this it was necessary that the production of shells should go on at the enormous rate of 100,000 a day, according to the demand of the war minister on Sept. 20, 1914, and an increasing quantity of metal was soon required for cannon, guns, etc. Mobilization had caused a shut-down of all the plants and a crisis was threatening, but fortunately the same condition prevailed in Germany. Everything was lacking from the metal to the machinery. Coke ovens and blast furnaces were now constructed; an office was opened in London for the organization of producers from foreign countries; plants were readapted to iron- and steel-working; the labor question was attacked from various angles; foreigners and women were employed, and a system of organization by groups in different parts of the country was instituted. To facilitate financial operations credits were obtained from American and Swiss banks for the French manufacturers, who gave their signature to the government for more than 500,000,000 francs. No profit accrued from all this to the Committee of Forge-masters. From 1915 on the iron and steel production in France made good, and even exceeded the amount that could be used. The percentage worked in 1916 was 100; in 1917, 72; in 1918, 56. For castings, and for the same use for steel the percentages were respectively 94, 74, and 59. The rapid decrease was due to the lack of labor, fuel, and transport.

ECONOMIC CONDITIONS. France, like other countries, was harassed by serious labor troubles. The Socialists were successful in their May Day programme and on May 1st all the labor bodies in Paris ceased to work. On this occasion the

government showed the utmost firmness, employing troops to suppress disorder. For this it was attacked by the Socialists and several of them who were attached to the Peace Conference in the capacity of under-secretaries resigned. The Chamber of Deputies however supported the government by a strong majority. Serious economic and industrial questions including the high cost of living, increased taxes, hardships resulting from the fall of exchange, and the continuance of the censorship were among the causes of growing discontent. Strikes were very numerous. In the first week of June there were more or less serious strikes not only in Paris, but in other centres, involving coal miners, iron and steel operatives, motor car and aeroplane builders, the tube railway and omnibus and street car employees, locomotive engineers, employees of sugar refineries, and clerks. In the Parisian district the number of iron and steel workers on strike was placed at 300,000. Most of these strikes resulted from the fact that the eight-hour law enacted April 23d and carried into effect on June 2d provided at the same time that wages should be increased 25 per cent, but left the details of its application to be settled between the employers and the employed. This resulted in strikes on the part of workmen to enforce their demands. See **UNEMPLOYMENT.**

The economic and financial conditions were under discussion in the Chamber toward the end of July. A Deputy interpellated the government in regard to the measures it intended to take to protect French industry against German competition and at the same time to avoid throwing French working men out of employment on account of the high cost of living. He cited a number of instances of German competition injurious to the French, and wished to know what measures of protection had been taken. He called in question the entire economic policy of the government, pointing out the high price of all raw materials in spite of the importation of foreign products at a low price. He denounced the exportation of necessities, attributing it to profiteering and speculation. He proposed the removal of customs duties, the control of purchases made abroad; the supervision of imports and exports; change in industrial customs, and establishment of schools of apprenticeship; the granting of credit to industries, and an international understanding in regard to the conditions of labor. The programme of the government was outlined by M. Clémentel, Minister of Commerce. The chief causes of the increased imports, he said, was the great difference in price. For example, glasses for reflectors in Germany cost only 70 centimes; in France they cost three francs and 25 centimes. It was manifestly advantageous to import them. In the long run, if such a situation lasted, it would be necessary to take measures against it, but as a matter of fact the crisis in French commerce was only temporary and resulted from high cost of coal, freight, and the rate of exchange. The price would go down with the imports of coal from Germany and the freight charges would diminish with the release of the transports engaged in carrying back the American troops. As to the rate of exchange, he promised an improvement in the future, saying that the Allies of France were ready to aid her in that respect. He said that 1400 American chambers of commerce had sent representatives proposing to aid

France, especially by long term credits, and urging that missions should be sent into the United States to explain the industrial situation and to start a campaign in favor of changes in American law concerning the exportation of capital. Proposals had been made concerning an interest fund for long term credits and a means of equalizing the rate of exchange. As to customs, it would be necessary to revise the tariffs but to avoid the extremes either of free trade or of protection. Merchandise necessary to existence was not to be exported henceforth so long as the stocks were short. The exportation of leather for example had been prohibited. Finally there must be harmonious labor legislation throughout the world. In Germany, for example, while the working-men had an eight hour day as in France, it was supplemented by two extra hours. The government would endeavor to carry out its programme of construction for the merchant fleet. The employers and working men were showing a spirit of coöperation which was bound to bring excellent results. There was a new spirit among employers and working-men alike, and the object of the government was to inspire confidence in the whole industrial community. The policy to be favored to-day, he said, was the true French Socialistic programme, the programme of Saint-Simon, namely the extension and organization of production, and the hierarchy of industry. He concluded with the remark that by means of this equilibrium of forces and harmony of efforts and wills, it would be possible to reconstruct the country and to give it a prosperity that would astonish the world just as its resistance in war time had astonished it.

RECONSTRUCTION. The Director General of the Technical Services estimated the needs of reconstruction in the invaded regions as follows: Building work alone would require 22,000,000 tons of material and the labor of 700,000 people for one year; 100,000 houses are to be entirely rebuilt, requiring 5,000,000,000 bricks, 3,000,000 cubic meters of sand, 1,000,000 tons of lime, 13,000,000 square meters of tiles, and 3,000,000 cubic meters of wood. Reconstruction of highways and railroads would require 3,000,000 tons of materials and the labor of 15,000 men for one year. An addition of 20,000 trains and 5000 trucks would be required. Figures were published in October showing some of the results of the reconstruction that had been accomplished since the armistice in the previous year. Out of 550,000 houses demolished, about 260,000 had been rebuilt; 2106 kilometers of railway line had been repaired; of 1675 kilometers of canal route which had been rendered useless during the war, 700 kilometers were restored; and of 1160 factories destroyed, 588 had been reestablished. Extraordinary progress had been made in restoring to a cultivable state the land devastated by artillery, or cut up by trenches and barbed wire, which still abounded in shells that had not yet exploded. This tract measured about 4,500,000 acres, of which about 1,000,000 acres had been restored to the cultivators and 500,000 was ready for sowing. About 6000 miles of barbed wire had been removed from the region. In 1913 the taxes amounted to 5,000,000,000 francs; they amounted in 1919 to 12,000,000,000 francs. France was counting on the aid of her Allies for the work was beyond her strength, inasmuch as she had lost by death, wounds, and

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illness some 2,000,000 from her working class.

HIGH COST OF LIVING. The high cost of living in France was a more serious problem than among her Allies. Conditions were far worse than in England, and the government was freely criticized for not having followed a wiser policy. In general the prices at the beginning of the year were three or four times higher in Paris than in London. While this resulted to some extent from unavoidable differences, there were many in France who believed that if the government had followed the English plan the results would have been far better. It was pointed out that in England a strict and impartial system of rationing had been introduced, whereas in France there had been hesitation at the beginning, and after it was carried into effect it was enforced with the same vigor. In England there was no way of escaping the penalties of the law, which were applied equally to the rich and to the poor and there were many cases of important or conspicuous persons who were brought to trial. It was not possible in England as it was in France for the rich to compound with the authorities for infractions of the law. The French system was founded upon a different theory. The strict rationing and the fixing of the selling price was condemned there in certain quarters as a demagogic measure solely designed to placate the working class, but destined to fail, because there would soon be nothing left to distribute. In France they argued that it was better not to be concerned about the price, for the producer would be stimulated by this increase of price and in hope of gaining much he would produce all that he could, and thus abundance would result. This point of view was not verified by the result. According to statistics published by the French Ministry of Labor covering the relative cost of living in Paris and France generally from the outbreak of war down to March, 1919, it will be seen that in Paris the average increase in prices was 148 per cent and for the whole of France 178 per cent. The ministry issued the following table of increases:

Date	Increase in—	
	Towns of over 10,000 inhabitants	Paris
	Per cent	Per cent
January, 1918	112	91
April, 1918	138	118
July, 1918	144	106
October, 1918	161	137
January, 1919	178	148
February, 1919	178	126
March, 1919	...	148

These figures were compiled after inquiries covering 13 different household articles of which 11 were food products. The ministry, however, pointed out that in every case the increase was calculated on a fixed quantity of each article, and as restrictions and high prices had brought about considerable changes in the mode of living, certain food products formerly in general use now being made use of in reduced quantities or replaced by cheaper articles, the above figures might be considered as the maximum. See CITY PLANNING; DAMS; DOCKS AND HARBORS.

COMMERCE. In 1917 the imports for home use were valued at 16,311,000,000 francs and the exports of French origin at 3,837,000,000 francs.

During the first half of 1919 French imports exceeded exports by 10,000,000,000 francs. The imports during that period exceeded by 2,389,000,000 francs those during the same period in 1918. In spite of this enormous increase in value, the quantity of imports had slightly diminished. The diminution was in materials and manufactured products, while in food products there was an increase. Hence reduction was difficult in view of the high cost of living. On the other hand, as the result of the rise of prices, the value of exports, despite the falling off in their quantity, was nearly on the same level as in 1913, which may be taken as a normal year. The enormous rise of price is indicated by the fact that the quantity of exports had diminished by more than 500 per cent. These signs pointed of course to a crisis of production. France was purchasing from abroad vastly more than she was exporting, and the process could not continue without bringing disaster, hence the necessity, constantly urged in the press, of increased production which would enable the exchange of products for products. The French Customs Administration gave out the following import statistics of France for the first eight months of 1919: Imports of food products, 5,463,270,000 francs January–August, 1919, compared with 3,488,345,000 francs in the same period in 1918; materials necessary for industrial use, 7,792,592,000 francs in 1919, compared with 6,798,439,000 francs in 1918; manufactured products, 5,219,844,000 francs in 1919, compared with 4,336,159,000 francs in 1918. This gives a total of imports for the eight months in 1919 amounting to 18,475,706,000 francs, compared with 14,622,943,000 francs in the first eight months of 1918, or an increase of 3,852,763,000 francs. The figures for the month of August and the eight month period are based on the arbitrary valuations set by the valuation committee for the year 1918. The figures for the previous seven months were on the valuations set for the year 1917, and therefore the August figures (and the same will apply to figures for the subsequent months) are not strictly comparable with the previous figures.

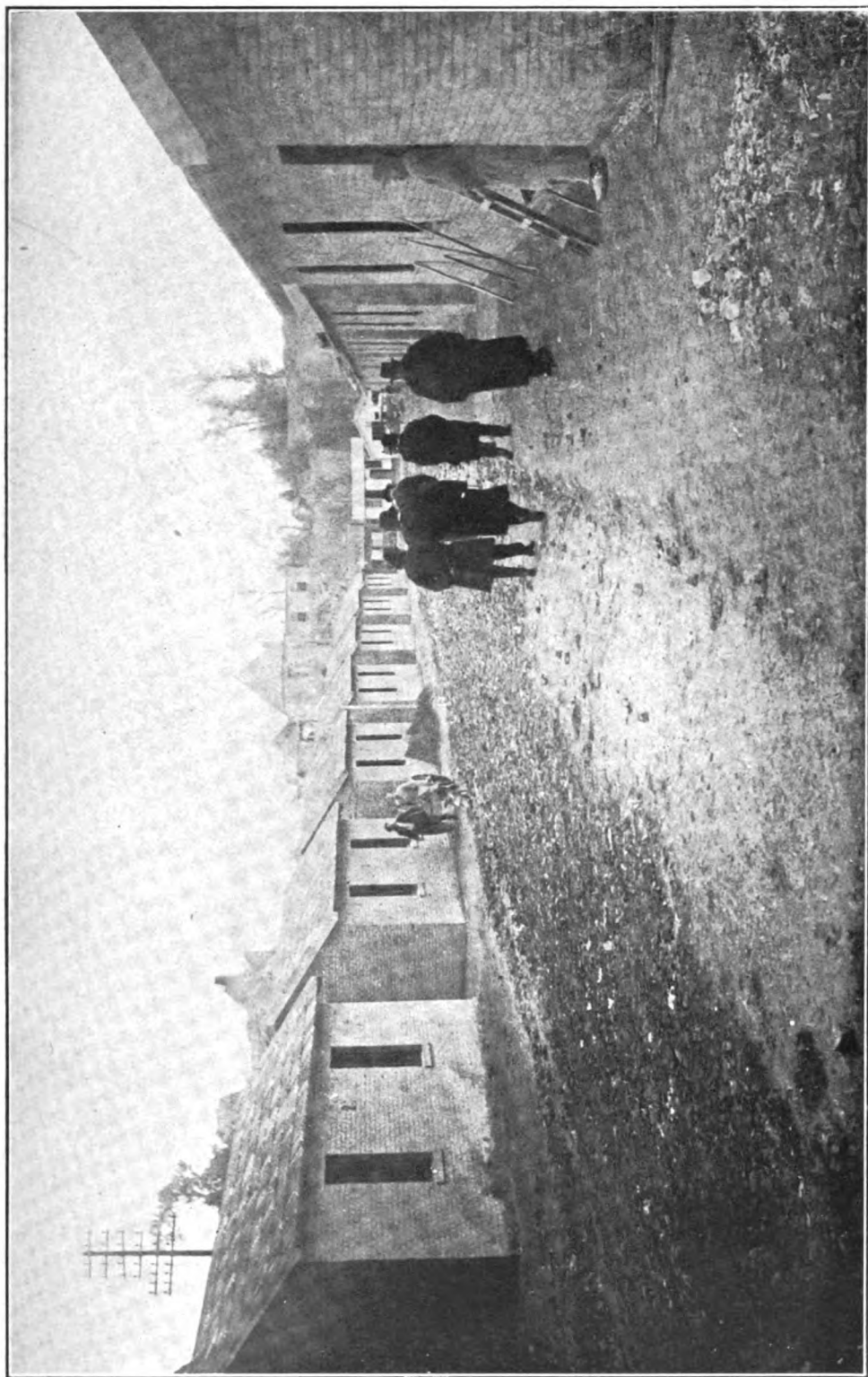
Imports greatly exceeded exports and this continued in an alarming degree throughout the year. At its close estimates for only 11 months were available. According to these the imports from January 1st to the close of November, 1919, were 25,336,978,000 francs, and exports only 6,223,448,000 francs, or a deficit of about 19,000,000,000. This was explained chiefly by the fact that nearly all of the French exports fell under the head of luxuries, such as automobiles and silks, for which it was more difficult to find a market than for articles of necessity. In May a large number of imports were relieved from the control previously exercised and were allowed free entrance into France. These included wool, cotton, flax, chalk, bricks, jute, cement, marble, building stone, tiles, timber, sponges, turpentine, seeds, oil, mineral waters, platinum, silver, certain classes of rough iron and steel, lead, copper, tin, zinc, nickel, and antimony.

RAILWAYS. Total railway mileage open for traffic in 1915 was 25,633. It was provided by law that when the date on which the state of war should cease to exist was fixed by Presidential decree, the railroads should revert automatically to pre-war conditions. The railroad administrations informed the Minister of Public

Works, June 14, 1919, that the railroad systems were not in a position to return to normal running conditions prevalent in time of peace without the adoption of certain transitory measures. They asked for the maintenance of a certain number of the regulations at present in force, and particularly those respecting priority of transportation for certain essential products; and they also asked that the regulations governing delivery of goods be modified to a certain degree. In responses to this a decree was signed by the President Oct. 15, 1919, providing for certain modifications in the regulations during the period between the cessation of hostilities and Dec. 31, 1920.

The following are the more important provisions: The principal railroads must give priority in the following cases: To the transportation of goods destined for the reconstitution of the liberated regions, along the lines of the programme laid down by the Ministry for the Liberated Regions; to slow freight, in carload lots, along the lines recommended by the Ministries of Revictualing and Industrial Reconstitution in regard to the supply of fuel and revictualing of the whole country. A provisional committee will be formed to decide upon the necessary measures to insure the proper compliance with these provisions and the satisfactory working of the great railroad systems. Its decisions are final and obligatory for all the systems. Another committee will be appointed to deal with questions relating to railroad supplies and rolling stock, and to coördinate the action of the railroads in respect to such matters. This latter committee will include among its members three manufacturers of railroad material designated by the Ministry of Public Works. Its decisions are final, with the exception of measures relating to closing stations, suppression of trains, or limiting shipments. In such cases its decisions are subject to revision by the Ministry. Owing to the heavy burden thrown on the railways after the armistice, by the work of demobilization, they were for a time more congested even than during the war. On Oct. 1, 1919, nearly 14,000 trains were required for the demobilization of nearly 2,000,000 men and the transport of the men on leave. About 2000 trains of 50 cars each were required to return men and matériel to the stations in the interior. Besides these there were the provision and military trains employed in the service of the celebration of victory, carrying passengers to the various fêtes, etc., so that the total number of military trains running after the 1st of April was not less than 20,000. Then the American army setting out from Brest had to pass through all France requiring 2000 trains, and there were some 3000 required for the men on leave, and for provisioning. The demobilization of the American army alone demanded 2500 trains, and the Americans on leave and the provisioning of the American army required 1500 more. It was estimated accordingly that the total military transport on French lines during the eight months following the armistice kept 30,000 trains employed. The drain upon the navy was also serious, and it was estimated that sea transport between France, Algeria, Morocco, and other colonies, and eastern Europe provided for 740,000 men and nearly 5000 horses.

During the year 1919 extraordinary efforts were made to restore normal conditions of operation to the French railways, especially those in



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RECONSTRUCTION IN FRANCE
A Street in the Rebuilt Section of Peronne

the battle area that suffered most severely. Chief of these were the Nord and Est, which required almost entire reconstruction, but which at the end of the year had been so restored that normal traffic could be resumed in a few months. On the Nord but one kilometer or $\frac{1}{2}$ mile of double track remained to be repaired at the end of the year, and this was over bridges in the course of reconstruction. The number of kilometers of double track out of service was reduced to 15 kilometers and of single track to 12 kilometers; these were short lengths approaching important bridges under reconstruction. All stations along the line of the Nord were in service at the end of the year. During October 49 bridges and viaducts were completed, bringing the total definitely completed to 258 out of 601. The reconstruction of the remainder was carried on rather more slowly and normally, the chief difficulties being inability to secure structural steel in France on short order.

At the time of the signing of the armistice the length of double track to be repaired on the Est railroad amounted to 577 miles of double track and 126 miles of single track. Of these by November, 1919, 519 miles of double and 122 miles of single track had been repaired, leaving but 58 miles of double and four miles of single track to be completed. By the end of November but 20 miles remained to be reconstructed. Forty-six out of a total of 214 bridges were definitely finished.

The political, economic and industrial conditions of the year naturally were reflected and found expression on the French railways whose efficiency was impaired at least where the lines were not altogether destroyed and rolling stock removed. Lack of equipment was a vital matter and increased wages were the order of the day. Added to this naturally was an increase of tariffs necessary by mounting costs of materials and operation and at the same time the political demand from Socialists and syndicalists for the nationalization of the railways. France however has had experience with both private and state operation, so that facts were available on which to discuss most thoroughly the question. It did not appear on this basis that state operation would act to reduce costs, either of maintenance or working. This subject was discussed during the year somewhat fully in the *Journal des Transports* (Paris).

According to this authority the coefficient of railway working, by which is meant the ratio between the cash receipts and working expenditure only (financial charges, interest and capital redemption of shares and debentures not included) was as follows in 1918:

Per cent		Per cent	
Orleans	85	East	96
Midi	87	North	112
Paris, Lyons & Medi- terranean	90	State (et al.)	120

In other words the state railways exceeded even the coefficient of the two railways which operated in the war zone and which were deeply affected by the war.

But it was possible to consider operating cost of state and private systems over a longer period than a single war year. A comparison of the state system with the Orleans could be made with advantage as the composition, geo-

graphical position and traffic were almost similar. In a 10-year period the coefficient of working of Orleans fluctuated between 52 per cent and 85 per cent, whereas that of the state varied between 68 per cent and 120 per cent.

The Orleans deficit reached 241,000,000, and it could be readily figured that if it had worked at the same price as the State, its immediate neighbor, its deficit would have reached over 1200 millions.

Accordingly it was argued that to represent nationalization, under those conditions, as a means of reestablishing the balance of exploitation without raising the tariffs, meant, either to ignore the facts, or to deny the well-tryed power of experience.

In order to deal more fully with French railways a "Committee of Exploitation" was instituted during the autumn. This scheme was devised by M. Claveille, minister of public works, and the plan provided for the collaboration of representatives from the different classes of railway workers with the heads of departments and directors in the management of the roads. The committee was to comprise a high official of each line as president, the operating managers of all the lines, three representatives of commerce and industry designated by the minister of public works and three representatives of the employees, also designated by the minister, this last representation indicative of the increased attention that was being paid to the operating forces and labor generally. Another important and much needed step was the formation of a technical committee to supervise the rolling stock, composed of the chief engineers of all the lines, three manufacturers of railroad material and three representatives of the employees appointed by the minister of public works. That these committees would be responsive and work in harmony with the government was to be assured by the fact that a representative of the government would attend their meetings, and his assent will be necessary for the execution of exceptional measures.

Increased costs and deficits were common on various French railways, notwithstanding heavy traffic; this of course was due to expenses of fuel, material, and labor. During the year 1918, there were a dozen stations on the Paris Metropolitaine at each of which over 6,000,000 tickets were sold. Among these were: Vincennes 11 $\frac{1}{4}$ millions, Porte Maillot 10 millions, Bastille 9 $\frac{1}{4}$ millions, Gare du Nord 9 $\frac{1}{4}$ millions, Gare de l'Est 9 millions. While the total receipts increased by 3 $\frac{1}{2}$ million francs, the expenditure rose by 12 $\frac{1}{2}$ million francs, and the receipts were not sufficient to pay the fixed charges, there being a deficit of 3,000,000 francs. In 1913 the ratio of expenditure to receipts was 42.79 per cent, in 1916 it was 47.14 per cent, in 1917, 50.93 per cent, but last year it was 61.28 per cent.

SHIPPING. On Jan. 1, 1916, the French merchant marine consisted of 15,161 sailing vessels of 561,361 tons net, and 1939 steamships of 1,066,139 tons.

According to *Lloyd's Register of Shipping* in 1919 France had fallen to the seventh place in shipbuilding, not only coming after England, the British colonies, United States, and Italy, but also after Japan and the Netherlands. Before the war the ship traffic represented in weight about half of the total French trade, and in

value about two-thirds. Before the war France paid in freight to foreign vessels 414,000,000 francs and in 1919 she was paying more than 1,500,000,000 francs. During the war the merchant marine had suffered heavy losses, estimated at 922,000 tons, destroyed by the enemy out of a total of 2,500,000. Navy yards were turned into munition works for the production of supplies, not only for France, but also for her Allies. Their capacity was doubled and it was estimated that they could produce if they had the means at their disposal at the rate of from 400,000 to 500,000 tons a year.

Projects were formed during the year for the restoration of the French merchant marine. There were negotiations between the English and American government for the purchase of ships. The administrative council of the French ship-builders was engaged toward the end of the year on an arrangement with England which would provide more than 500,000 tons; and communications were entered into with the shipping board of the United States. Also plans for an arrangement with Canada were under consideration for the purpose of placing at the disposal of France steel vessels with a tonnage of 500,000, of which 40,000 would be immediately delivered and 72,000 before the end of the year. It was understood that the vessels would be built according to French specifications and under the control of French engineers and that long term credit under favorable conditions was granted to France. The arrangement with Canada had the advantage of promising entirely new vessels built in well-equipped ship-yards and by experienced workmen. The situation at the beginning of the year was serious, for France suffered greatly from lack of bottoms, but as the year went on the situation improved and more and more offers presented themselves giving a better chance of choice. Toward the end of the year the prospects for the renewal of the French merchant marine seemed good.

FINANCE. The budget estimates for 1918 (exclusive of war expenses) were: Revenue, 10,064,657,897 francs; expenditures, 9,956,604,788 francs. The national debt on Jan. 1, 1919, was 147,472,421,289 francs, of which 116,874,224,289 was internal, and 30,598,197,000 external. Total fixed debt, internal, 67,738,554,789; floating, 49,135,696,500 (including National Defense bonds and advances by the Bank of France). Total fixed debt, external, 15,127,000,000; floating, 15,147,197,000.

FINANCIAL DISCUSSION. In March the following figures showing the financial situation were made public and widely circulated in the press.

August 1, 1914, to March 31, 1919	
France	
Expenses	182,000,000,000
Receipts, deposited or discounted	158,000,000,000
Deficit	24,000,000,000

The above deficit would be increased by all the cost of demobilization. The following discussion by M. Charles Dumont, former Minister of Finance, is fairly typical of French opinion as expressed in the press in regard to the situation: Supposing the country should return at the end of 1920 to former conditions, the budget of 1921 must cover the permanent expenses by permanent receipts. Now the permanent ex-

penses of the budget of 1921 that were already certain amounted to 19,000,000,000 francs. France would have to pay out in 1919, 8,000,000,000. The important question was whether taxes would yield enough. France's resources were certain to increase as the years passed, and new taxes would surely have to be imposed, but it was evident that no financial expedient compatible with social welfare and healthy economic activity could raise France from her depleted and enfeebled condition. The question was not only financial; it was political. Germany was guilty of the world war. She had deliberately planned the crime of devastating Northern and Northeastern France, and the plans of Hindenberg to this effect had been applauded by the Germans in 1917, and after that the systematic destruction of agricultural and industrial machinery in the zone of occupation, and in the course of the retreat, had been deliberately and with general approval carried out. She therefore owed reparation to France. The Allies of France desired this and would insist upon it in the Peace Treaty. Now Germany would not be able to pay her debt in cash. She must draw upon her immediate assets so far as possible, but time must be allowed her for the payment of the balance. Annuities might have to be created to liquidate the debt. During this time the Allies of France ought to form a solid bloc of creditors. On this condition alone Germany would escape the temptation to refuse to continue payments as soon as she found herself strong enough, and in the presence of divided enemies. This would be the chief object of the League of Nations which must first of all assure itself of a complete reparation to the nations that had been the victims of the war. The Peace Conference would have to decide whether Germany should do more than pay for actual damages inflicted—whether in fact the cost of the war would not have to be borne in part by the Allies. The question before France was on whom rested the duty of paying the costs of the war if the enemy did not pay. On principles of justice all the Allies, according to their resources in the condition in which the war had left them, were responsible. This principle of international equity must triumph if the victory were to conform to principles of justice. The war was the affair of all the Allies; hence the expenses must be shared among them equitably. Those who had spent most were the ones who did the most to assure the others their safety and welfare. If the Allies did not share the costs of the war according to their abilities, Germany would proceed to ruin France, and would therefore realize at least a part of her ambition. In a just cause for which England and the United States gave their blood, they ought not to hesitate to give their money to the end that justice be realized. Thus the League of Nations must in the first place consist of a financial association which would guarantee the credits of the Allies as against the Central Empires, and if these Central Empires could not pay all, the League of Nations must liquidate the war debts by sharing them according to the resources of the members. This war debt could be liquidated in the course of a long series of years by means of notes and bonds bearing the signature of the combined Powers, secured by annual taxes over which international supervision would be exercised. It was not only the duty, but it was the interest of

the Allied nations concerned to establish a financial League of Nations during the interval. Down to that time the Bank of France owing to its great power, its experience in the matter of credit, and its large resources of gold, had been able to discount loans and taxes, and to advance to the government notes to the amount of 20,000,000,000 francs, while at the same time maintaining its notes at par. This was possible because every one knew that the government would honor its engagements with the bank. This would change completely, and the country would be ruined, if the government required the bank to issue notes that were not secured, that in fact were not redeemable. The government sustained by the public opinion must avoid this peril by rejecting any expense that was not strictly necessary; by imposing of essential taxes; and by the prompt placing of loans when necessary in the home market or in foreign countries. It had given assurance that this would be its policy. There was a sharp debate on the budget in March. M. Klotz, Minister of Finance, informed the Chamber of the extent of the deficit and said that the budget would be three or four times as heavy as before the war. There was a deficit of 10,000,000,000 francs in 1919 which he proposed to meet by an increase of direct taxes, the income tax, the liquidation of war stocks, and a change of the law in respect to the transportation of troops in France, whereby the Allies would be made to pay the cost of transport. He proposed either that rates of exchange should be internationalized or that the war debts should be pooled and guaranteed by a union of the Allies. This was urged as only fair to France for one of the two courses must be taken if she were not to be placed upon a worse footing than others in respect to the purchase of raw materials. These statements encountered bitter criticism as noted under *History* below. The explanation offered for the vagueness criticized in his report was that he was obliged as a member of the Peace Conference to limit himself to general statements in respect to matters upon which the Chamber desired specific information. In the summer the necessity of issuing a large loan was under discussion. M. Klotz, after making his calculations, declared that the cash on hand in the treasury would be sufficient until December 31st for meeting the expenses of the last quarter of the year 1919. There was much concern over the fact that subscriptions for the loan had not been opened before. The chief resources if not the only ones to be counted upon were the taxes and the bonds of national defense. If the returns from the taxes were assured, there was no need of disposing of the bonds, and certainly not at the rate of 2,000,000,000 a month, the figure on which the minister based his assurance to the Chamber that all payments of the second quarter would be made when they fell due. The floating debt was also a source of anxiety. This included short term loans and the creditors at the expiration of the term had right to demand reimbursement. Before the war it amounted to several millions. In the summer of 1918 it exceeded 32,000,000,000 and consisted chiefly of the bonds of national defense of which a large number were redeemable within six months. If the bond holders should demand redemption the treasury was likely to be embarrassed. On the date when all or part of this floating debt was

consolidated by the issue of perpetual *rentes* such as the 5 per cent of 1915 and 1916, and the 4 per cent of 1917 and 1918, this difficulty disappeared, for the holder of these securities could not demand the return of the money he had loaned the government. Thus was explained and justified the insistence of many financiers upon a consolidated loan. It was argued that there was no financial security for a state having so considerable a floating debt. When an individual owes to several creditors sums of money that may be demanded from day to day, his one resort is to find some large lender who will supply him with the means of paying off everybody and allow him a reasonable time for repayment, and the same really applies to governments. Moreover the French state had contracted many engagements with the British and American governments and had issued obligations running 10, 6, and 5 years. And although these were to fall due at later intervals than the floating debt, it was none the less necessary to have recourse to a perpetual loan for the purpose of payment. There was general agreement in recognizing that the government should make every effort to reimburse as soon as possible the Bank of France for the advances that it had made to the state. Not a single loan but a series of loans was required in order to substitute for the instability resulting from the heavy floating debt and the short term debt the better conditions which would result from a consolidated debt: and it was argued that the sooner this began the better. The government had declared that a large operation like this could be carried out only under conditions of better confidence.

The difficulties before France in the matter of financial recovery was the subject of constant discussion throughout the year in France and in other countries. The frequent recourse to the answer that Germany would pay, whenever a financial question was raised, ended by becoming ridiculous, and there were not lacking pessimists in France who declared as a matter of fact that Germany would not be able to pay anything. The Finance Minister, M. Klotz, went into the subject at some length in Parliament. He showed that Germany had engaged to pay without restriction for the devastation she had caused, for pensions, and for allowances, and this already came to such a heavy sum that it would have been useless to add to it the 670,000,000,000 marks which represented the military costs to the Allies. As it was, Germany was responsible for a formidable amount whose figure was not exactly fixed, but which for France alone would exceed 200,000,000,000 marks, and since France was to have 55 per cent of the whole, the amount would be at least 375,000,000,000 for all the Allies. No figure had been written into the treaty, but Germany would not be able to escape this obligation. The Allies did not think it practicable to impose a figure that would penalize Germany, for this would certainly cause default. Germany had proposed the absurdly insufficient amount of 100,000,000,000 marks. Now as to the question of collecting the 375,000,000,000 marks for the Allies including the 200,000,000,000 for France, France needed the money at once, for she would be obliged to pay the pensions, allowances, etc., before she had received anything from Germany. Between now

and 1921 she would receive her share of the first 25,000,000,000, which share had not yet been determined, though the sum of 6,000,000,000 had been mentioned as payable exclusively in goods and equipment. France also obtained a portion not yet determined of 40,000,000,000 marks in gold, or 50,000,000,000 francs in German bonds, bearing interest at 2 per cent. After 1921 the International Committee on Reparations would estimate how much Germany could pay annually, and would make her pay it. The Finance Minister approved this arrangement as making an international organ responsible and this organ must not be confounded with that financial section of the League of Nations, charged with payment of the costs of the war, which as yet existed only in principle. The question was whether Germany could pay so large a sum as 375,000,000,000, and, if so, within what length of time. A period of 36 years had been granted to her and she would have to pay France interest on sums still due after each payment. Before the war she laid by each year 10,000,000,000 marks or about 12,000,000,000 francs. In view of the rise of price and the excess of production over consumption it might be now placed at twice this amount or from 24,000,000,000 to 25,000,000,000 francs. Germany would be able to pay this without ruining herself but evidently in this case she must work even harder than she had before on account of the loss of Alsace-Lorraine, and the Polish territory. As to her rate of exchange that would improve as production advanced. In short, it was necessary that Germany should become prosperous once more, for naturally she could not pay her debts if she had nothing to pay. This exposition of M. Klotz was criticized as optimistic and as taking for granted too many favorable conditions. It was recognized that the whole financial future of France depended on the financial capacity of Germany and her loyalty to her engagements, and it was questioned whether bad faith on her part could be overcome by the International Committee on Reparations. In short there was dissatisfaction in France with the guarantees of the financial clauses of the treaty in her interest.

TAXATION. In October, 1919, taxes and revenues (indirect), including monopolies yielded 831,501,000 francs, an increase of 32 per cent over the month before. Returns had steadily mounted during the year. During the first 10 months of 1919 they exceeded the budget estimates by more than 1,000,000,000 francs and exceeded the receipts for the corresponding period of 1915 by 2,359,999,500 francs. The budget estimates were exceeded also by the yield of the taxes on payments, transport, exhibitions and tobacco, and by the customs. The general tax in the first 10 months of 1919 yielded about 462,000,000 francs; wage and salary schedule, 59,000,000; industrial and commercial profits, 184,000,000; agricultural profits, 2,000,000; excess war profits, 1,176,000,000. The last-named figure was far behind the figure for England. From Apr. 1, 1918 to Feb. 1, 1919, the yield from the excess profits tax in England was £223,117,000, or at the normal rate of 25 francs to the pound sterling, 18,000,000,000 francs or over 15 times as much. The yield of the tax on payments (including luxury tax) increased as the months passed and the law was

more strictly applied. For the first 10 months of 1919 it amounted to 485,000,000 francs. There was criticism in France of the lack of a reasonable financial policy which corresponded to the national needs and it was said that all the taxes during recent months were ill conceived. The income taxes for example in order to be effective required three times as many supervisors as taxpayers. The tax on war profits simply resulted in the addition of the tax to the price of the product. The tax on luxuries was worthless. This was the point of view of a number of deputies who held that the whole system should be overthrown and replaced by something better. It was proposed by some that there should be a tax levied which would bring in quick and regular returns as for example the tax on all transactions. In the long run the consumer always pays and it was argued that there was no use in trying to avoid that contingency. It was idle to try and find a tax which would not bear upon the poor. The tax that every one had to pay was a just tax. There was opposition to the interference of the state in business after the war. That policy was criticized as too much on the order of German statecraft. At the end of the year for example the transport crisis in France was paralyzing all business activity. There was a strong demand on the part of the old-fashioned individualists that the state should restore to the railway companies and to the business men their entire liberty. To be sure the government had pretended to do so but under the pretext of the policy of favoring certain services as for example by the rule of priority for provisions and for goods destined for the liberated regions it continued to hold up the railway system. Government control was declared to result in intrigue favor and influence and a large number of political debaters were opposed to it.

FINANCIAL SOLIDARITY OF THE ALLIES. In financial circles in the United States and among persons who had returned from France, there was much comment on the alleged tendency of the French to depend too far on the financial support of the United States. It was said that the distress caused by the war had lowered the energies of the people and that there was a lack of initiative in regard to new enterprises, and a lack of the spirit of self-help. On the other hand in France many arguments were put forth to justify the participation on a large scale of foreign capital in the recuperation of France, not only for the sake of France, but in the interest of the foreign Powers themselves. The financial solidarity of the Allies was an expression constantly heard in the French Chamber. The position of the French may be indicated by the following outline of an article by M. Stephen Lauzanne: By financial solidarity of the Allies it was meant that the rich Allies of France and of course the richest of all, the United States, would assume a part of the war debt which fell on the poorer members of the Allies, and specifically that France, having spent 316,000,000,000 francs in carrying on the war, and being unable to recover more than 110,000,000,000 or 120,000,000,000 francs, should ask the United States to assume a part of the 200,000,000,000 francs that remained. This demand, frequently made in the Chamber and on the street, was echoed by the

ministers, but the latter took no definite steps in the matter, knowing well that such a demand would seem excessive to Americans. The American representatives indeed had declared that they could not see why this demand was made and that the American people would not understand it, and they produced the figures of the American loans to the Allies during the war, which aside from the costs of the war indicated that the United States already bore a large share of the burden. These figures totalled \$9,672,272,569 of which \$4,316,000,000 were loaned to Great Britain, \$3,047,974,778 to France and \$1,601,775,946 to Italy. They declared that for the United States to shoulder a part of the financial burden of Europe it was necessary to prove that Europe could not bear it herself. This proof was not produced and in fact no attempt was made to produce it. Thus in France values on the Bourse constantly rose during 1919. Now there appeared to be a large quantity of capital seeking investment in France, and the question was asked why the French Government did not appeal to its own capitalists instead of to those beyond the seas. In the United States it was pointed out that a certain number of French tax-payers had refused to fill out the tax blanks which had been sent to them under the French law, claiming that incomes ought not to be taxed. Now if French incomes must not be taxed for the payment of the French debt, why should American incomes be taxed for that purpose? One of the American representatives argued that before talking about financial solidarity, it was necessary to establish political solidarity among the Allies, and if some of the Allies disdained the opinion of others, they ought also to disdain the money of others. For example, it was hard to see how the financial solidarity of Italians and Jugoslavs could be established and endorsed by the United States. This did not mean that the United States disassociated herself financially from her Allies, and least of all from France. The United States accepted the principle of converting into a long term credit the loans that she had already made to France, and of suspending interest payments, which would amount to a new credit of 10,000,000,000 francs. Moreover, in various financial councils heard at Washington and New York, the United States showed a disposition to discount the bonds that Germany had engaged to give France in payment of the indemnity, which arrangement would guarantee that the bonds were not mere scraps of paper. Also several American cities had shown themselves ready to make substantial loans to French cities for their rehabilitation. In other words, the United States had shown willingness to come to the relief of France financially, but she had not shown willingness to enter into a system of financial solidarity with all the Allies or to consent to proportional regulation of the expenses or charges of the war.

At the close of the year official opinion in the United States held that the American government ought not to aid a European state unless it had taken the necessary measures to rehabilitate its own credit; and the following figures and arguments were repeated in the press: It was not just to tax the American people on behalf of a foreign Power that had not the courage itself to resort to radical measures of taxation. It was right to insist that the borrowing

country should establish a source of sound financial policy. In the United States, 36 per cent of the war revenue was derived from taxes, in England, 30 per cent; in France, 17 per cent. Paper money per capita in the United States was \$33, in England, \$50; in France, \$178. Certain guarantees must be furnished, especially a programme of economy and of rigorous taxation of wealth.

In France, M. Klotz had declared that down to December, 1919, the French government had already paid out for Germany 15,000,000,000 francs for the military allowances and 40,000,000,000 francs for the invaded regions. France was a creditor of Germany to that extent. Never before, said certain commentators, has the conqueror treated a conquered people with such clemency. "It depends on the Allied Powers to aid France in recovering that debt and from now on to aid her financially. During the war the British and Americans could not say enough about the heroism of France. Now that her heroism had won the victory, they told her to help herself the best she might and that they had other uses for their money. It was the duty of England, which had not been ravaged, and of America, which had suffered so little, to come to the aid of France, or if they did not like that term, to collaborate with her. After all it was wrong to speak of 'giving aid' to France. It was not a matter of aiding France, but of joining her in the defense of a common cause." These and similar criticisms were directed against the Anglo-Saxons. England was said to have gained rich territories by the Peace of Versailles and she was urged, as a matter of good policy to devote a part of the new resources to defraying expenses incurred for the common good. The same appeal was made to the United States, as a great nation uninjured by the war.

RATE OF EXCHANGE. In the first week of September the American dollar exchanged for more than eight francs instead of five francs, which was the average rate before the war, the pound sterling for 34 francs instead of 25 francs, and the peseta for one franc 60. In the French press this was accounted for by various considerations. It was pointed out that in 1913 the excess of imports had been about a billion and a half, whereas in 1919 this excess for the first six months had reached the figure of nearly 10,000,000,000; that visitors and tourists who formerly brought their gold had not yet resumed their habit of traveling in France, and on this point the profiteers who had overreached the English and the Americans were condemned as tending to prevent the resumption. Before the war France had depended upon foreigners for its international transport service, and had to give several hundred millions a year for it. It could readily be imagined how much this had increased with the rise of freight charges and the falling off of the merchant marine since the beginning of hostilities. Before the war France had a capital invested abroad amounting to some 40,000,000,000 francs upon which it could draw for the payment of freight charges and imports. This foreign capital had for many causes greatly diminished, and as regards Russian, Turkish, Austrian, and other investments, had become entirely unproductive. On the other hand a great quantity of foreign securities had been loaned by individuals to the state which

had sold a considerable part in neutral countries in order to maintain the rate of exchange. Finally there was the inflation of the fiduciary currency, that is to say, the excess of paper money amounting to 35,000,000,000 bank bills. In the interior money was greatly depreciated, hence the general rise of price, and it was depreciated abroad also according as the currency was more inflated than in foreign countries. As to the remedies, the main requirement was production, the making of goods for sale, and the drawing of foreigners to France. Also long-term credits must be obtained abroad. The question of foreign trade and the custom's tariff was also raised and the entire financial situation including the cost of living was involved. Naturally the five preceding years had thrown confusion into the whole economic system of the country. Exchange was still falling at the close of the year and it was pointed out that never before, even after the war of 1870 or during the Commune, had the franc sunk to so low a point.

ARMY. The effectives mobilized during the war are shown in the following table:

	Officers	Men
August 15, 1914	92,888	3,781,000
February 1, 1915	97,753	4,900,000
January 1, 1916	109,614	5,096,000
January 1, 1917	115,074	5,026,000
January 1, 1918	128,378	5,064,000

At the last-named date the infantry numbered 2,106,575; artillery, 899,845; aviation, 59,275; cavalry, 166,422; engineers, 185,110. Released from active duty for other service, 343,000, of whom 297,000 were engaged in agriculture and 8000 in instruction. The Minister of Finance supplied figures of expenditure as follows: 39,000,000,000 francs for artillery; 26,000,000,000 for shells and projectiles and 11,000,000,000 for the payment of the troops; total expenditure of the ministry was 119,000,000,000 francs. The organization of the future army was under discussion in France at the end of the year, but plans had not been settled. It had not even been decided what should be the number of divisions. Projects were put forward by military authorities involving the following points: The mainstay of the new force should be the men already engaged or to be reengaged, for they alone could form the nucleus of non-commissioned officers and specially trained troops. The number of these was placed at from 100,000 to 150,000. It was proposed that the rest of the army should be based on universal, obligatory, military service for not more than a year, and that it should consist of two halves, one called to the colors in October, and the other in April. It was also proposed that the diversity in training of officers should be abolished and that in place of the separate schools of Saint-Cyr, Fontainebleau, Saumur, the Polytechnique, etc., there should be a single school of instruction which would give a uniform education. It was argued that the war had been a war of trained specialists, and that the main school henceforth should be the Polytechnique, the others to be simply centres of application and perfection. With universal service it was necessary to have definite periods of training, and a better system than before 1914. The periods should be short, but intensive. No plan embodying these principles was adopted. In a report to a committee of

the Senate, M. Doumer made the following analysis of the nucleus of the future army: 30,000 non-commissioned officers destined for a military career; 20,000 non-commissioned officers and soldiers of the colonial forces stationed in France; 50,000 French soldiers engaged or reengaged; 50,000 foreign soldiers or North African natives. These figures represented the nominal estimates corresponding to the results of voluntary recruiting. The new plans were criticized in certain military quarters as inadequate. It was pointed out that the occupation of the Rhine provinces called for at least 80,000 men. There were in October, 1919, five divisions in the East or about 30,000 men. For the guarding of the prisoners more were required. For the various classes of administrative clerical work some 20,000 secretaries or employees were engaged. This would take away some 160,000 men from the 450,000, which would be supplied under the new system. There would remain only 190,000 to make up the units of the interior. This they said was too small a number. M. Doumer counted that these units would be reduced by half on a peace footing, and he placed the army corps at a single division in active service which would be increased when mobilized by division of reserves.

NAVY. Opinion as to the proper policy to pursue in regard to the navy was divided. On the one hand a considerable party favored the expansion of the French fleet to an extent that would impose a heavy cost on the nation. On the other hand there were those who went so far as to desire the practical extinction of French naval power on the ground of the expense involved in its maintenance. The views of specialists who had investigated the subject were set forth by the president of the parliamentary naval commission in November. He pointed out the marked inferiority of the French fleet as compared with the great naval power of England and the United States. France could put into the service seven dreadnoughts with a displacement of 162,000 tons, including four dreadnoughts of the type of *France*, and three of the *Bretagne* type. Italy had three of the *Julius Caesar* type and two of the *Duilo*, attaining 108,000 tons, but she also had control of two Austrian armed vessels of the *Viribus Unitis* type of 20,300 tons, and had under construction four armed vessels of the type of the *Caracciolo* type, of 31,000 tons each. If the two Austrian armed ships were assigned to her, and if she completed these four powerful units, she would have a displacement of 272,000 tons or 110,000 tons, in round numbers, more than that of France. It was proposed either that France should continue to completion the five vessels of the *Normandie* type, or that she should undertake to build units that were comparable to the best of other countries. The *Normandie* type, however, was already out of date, and was not up to the standard in speed, offensive power, or resistance to torpedoes. The building of better vessels depended on two conditions which were not at present fulfilled, namely, the enlargement of the basins and yards which at present were not adapted to the building of battle cruisers, or even armed vessels superior to the *Gascogne* series; and secondly, the possession of petroleum sources which would assure the country of adequate supplies in time of war. Thus France was far inferior to Italy, and

in respect to the United States and England the difference was of course immeasurable. As to the small cruisers and the flotilla craft France showed the same inferiority to all the Powers including Italy. France had only one torpedo destroyer which could bear comparison with any of the numerous destroyers of recent model which Italy possessed. Her flotilla craft had never been well armed and was inferior in speed. They had been badly damaged by the war. As to submarines France possessed 72 of which 27 were below the standard, while Italy had 69 of which only seven were below the standard. The reasons that had prevented France from building ships since the first of August, 1914, were obvious: France in order to repulse the German invasion had to mobilize all her men, including the older classes. It was a question of life and death which drew immediately to all the fronts the working men of the arsenals and shipyards. They had to be recalled soon afterwards to increase the production of cannons and munitions, and to build small craft to avert the submarine peril. It was argued that both the security of France and her position in the world required a moderate but effective naval programme.

GOVERNMENT. Premier and Minister War, Georges Clemenceau; Minister Foreign Affairs, Stephen Pichon; Minister Justice, Louis Nail; Minister Interior, Jules Pams; Minister Finance, Louis Klotz; Minister Marine, Georges Leygues; Minister Commerce, Industry, Posts and Telegraphs and Marine, Louis Dubois; Minister Public Works, Albert Claveille; Minister Industrial Reconstruction, Louis Loucheur; Minister Public Instruction and Fine Arts, Leon Berard; Minister Colonies, Henry Simon; Minister Labor and Social Foresight, Paul Jourdain; Minister Agriculture and Provisions, M. Noulens; Minister Liberated Regions, Albert Lebrun.

HISTORY

ATTEMPT ON THE LIFE OF CLEMENCEAU. On February 19th, as the prime minister was leaving his house, five or six shots were fired at him by a man from among a group of people near the door. One of the shots struck M. Clemenceau in the shoulder, but did not inflict a serious wound, and after a few days' confinement at the hospital was reported to be fully recovered. On February 28th, he resumed his usual work at the ministry. The would-be assassin was promptly arrested. His name was Emile Cottin and he was described as an anarchist. His trial followed promptly and on March 15th the court-martial sentenced him to death. He received the sentence calmly, saying that he was glad to die for the cause of the proletariat.

PROFITEERS. A measure imposing heavy penalties on profiteering was introduced in the Chamber on February 5th. Conditions as reported in the press were serious. The new measure proposed that any one who caused an inflation of prices by holding up goods, or by raising the price fraudulently should be subject to from one month to three years in prison and a fine, and that the same penalty might be inflicted on those who even without fraudulent methods, but for the purpose of speculation, had raised the price above the natural market value. Persons not in business before Jan. 1, 1915, were liable to heavier penalties.

COLONIAL MINISTRY. The ministry of the colonies was reorganized by decree on June 29th in accordance with a new plan by which the colonial office was turned into a general agency of the colonies. The ministry of the colonies was established in 1894 and originally included, apart from the military direction and colonial administrative services, 13 distinct services grouped in an inconvenient manner. In 1911 this system was reformed under M. Messimy and the service was divided geographically, but again was found inadequate and cumbersome. The decree of June 29th removed the administrative services and attached them to a general agency of the colonies. It also re-grouped the colonies according to the conditions prevailing in them instead of geographical vicinity and it established new technical services for banks, economic questions, merchant marine, justice, and education. In detail the groups were as follows: (1) Indo-China and Madagascar; (2) West Africa, Equatorial Africa, and the Somali Coast; (3) autonomous governments, namely, Guadeloupe, Martinique, Guiana, St. Pierre, and Miquelon, Réunion, India, New Caledonia, and the French Establishments of Oceania; (4) personnel; (5) auditing; (6) military service; (7) secretariat; (8) accounting; (9) penal service; (10) colonial banks and customs; (11) inspector-generalship of public works for the colonies; (12) inspector-generalship of the merchant marine and of colonial transit; (14) inspector-generalship of health service in the colonies; (15) inspector-generalship of colonial public instruction.

MINISTRY OF BEAUX-ARTS. A governmental decree at the beginning of October effected an important change in the system of the school of Beaux-Arts by reducing the tenure of office to five years instead of for life, and it was the government's intention to extend this principle to the teaching of art in general and apply the same rule to the professors of applied art in Paris and provinces, to the directors of the national manufactures, and the professors of the Conservatory. This was proposed in order to render these art-teaching bodies more active. It had been found that in too many instances persons were appointed to their positions who were unable to carry on active work, and the teaching was thought to have suffered from the retention of many professors who had become old or for other reason incapacitated for duty.

POLITICAL PRISONERS. In the YEAR BOOKS for 1917 and 1918 will be found an account of the more celebrated cases of political offenses including the trials of Caillaux, Bolo Pasha, Malvy, Humbert, and Almeyreda and less conspicuous characters such as Turmel, Lenoir, Loustalot, and others. An account of the *Bonnet Rouge* and the death of Almeyreda and of the trial and execution of Bolo will be found in the 1918 YEAR BOOK. It was found upon appeal that the cases of Loustalot and Comby did not rest on sufficient evidence to justify their arraignment before the court of justice. The case against M. Turmel was terminated by his death. As to Humbert the case when it came to final trial was dismissed. As to Caillaux he was removed to the hospital on account of ill health and at the end of September decision on his appeal was rendered to the following effect: Against Joseph Pierre Marie Auguste Caillaux, 56 years old, it was charged that after the dec-

laration of the war, especially in 1914, 1915, 1916, and 1917, he had made attempts upon the external safety of the state; that in France, and especially in Paris, by plots, schemes, and understanding with the enemy, he had supported hostile enterprises against France or her Allies, of a sort that favored the military plans of the enemy; that these were crimes punishable under the penal code and the code of military justice. The case of Caillaux was therefore returned to the court of justice, established by the decree of Oct. 15, 1918. On October 23d Caillaux appeared before the High Court. In answer to the customary questions, he declared that for 20 years of his political life he had sought only the good of his country, and that his conscience was clear as to the policy he had pursued during the war. He denounced the prosecution for having stirred up popular sentiment against him, and characterized this policy as an attack upon liberty of thought. The High Court decided that the trial should begin on January 14th. As Caillaux's case developed, the charges against him narrowed down to this matter of intriguing with the enemy for a peace of compromise. The charge did not imply that he had been a German agent employed to bring about the defeat of France, but only that while his country was at war, he devoted all his energy and influence in France and abroad, and in his relations with the *Bonnet Rouge* to conciliate Germany. Although every government in France after the first of August, 1914, had with the virtual unanimity of parliament determined upon a victorious peace, Caillaux had associated himself with a movement for a peace of compromise. The case was still pending at the close of the year. Lenoir was condemned to death but was reprieved at the end while on his way to the place of execution at Vincennes. On October 24th, however, his appeal having been decided on adversely, he was executed at the Santé prison. He was ill at the time and had to be carried by guards to the place of execution. The charges against him arose from attempts of German agents in 1915 and 1916 to carry on a defeatist campaign. He was arrested after the case of Senator Humbert came up early in 1918 on the charge that he had paid M. Humbert large sums of money as an agent of the Germans, and had received about \$200,000 as a commission.

RATIFICATION OF THE TREATY. On October 2d the bill containing the ratification of the treaty was carried by 372 against 53. Its text was as follows: "The President of the Republic is authorized to ratify and cause to be executed the Treaty of Peace signed at Versailles June 20, 1919 by France, the United States of America, the British Empire, Italy, Japan, etc.—[here follows the complete list of the Allied Powers]—and Germany; and also the acts which complete the treaty, namely: The protocol, signed the same day by the said Powers; the arrangement of the same date between France, United States of America, Belgium, the British Empire, and Germany, concerning the occupation of the Rhinelands; and the treaty between France, the United States of America, the British Empire, Japan, and Poland." The Chamber then ratified without discussion, and unanimously the treaties concluded at Versailles between France and the United States, and between France and England, the text of this

resolution being as follows: "The President of the Republic is authorized to ratify and cause the execution of the treaties concluded at Versailles June 28, 1919, between France and the United States of America, and between France and Great Britain, concerning the aid to be given to France in case of unprovoked German aggression."

The analysis of the vote for the ratification of the treaty is simple. The number of voters was 425 of which an absolute majority was 213, while the actual majority was 372. The 53 who voted against it consisted almost exclusively of the Unified Socialists. The figures were as follows: 49 Unified Socialists, 1 Radical Socialist, 1 Republican Socialist, 1 member of the Radical and Socialist Republican Union, and 1 member of the Democratic Republican Entente. The Socialist group numbered 93. Of these 33 Unified Socialists abstained from voting. Among the others who abstained from voting were 18 Republican Radicals and Radical Socialists, and small groups of the Radical Left. The absent on leave numbered 20.

THE END OF THE CENSORSHIP. On October 13th the censorship which for more than five years had controlled the French press and had often given rise to charges of gross unfairness and inconsistency was officially declared at an end. It was probably the subject of more resentment than in any other country of the Allies. Charges were openly made against it on many occasions, but in general writers contented themselves with satirizing it under veiled allusions. It was generally known by the nickname of "Anastasia." It was directed by the Press Service of the war department, and dated from Aug. 4, 1914, when a decree was issued prohibiting the publication of any news in regard to events of the war, such as mobilization, military movements, embarkation and transport of troops, composition of armies, effectives, etc., that had not been previously submitted to the Press Service of the war department. The editors and proprietors of the various dailies and other periodicals had to submit final proofs of every issue to the war department as soon as the last page of their publication was set up. If upon publication any item was discovered relating to military information that had not been communicated to the Press Service, the whole issue might be suppressed. At the beginning, the purpose of the censorship was simply to prevent the disclosure of military information contrary to the national interest, but later the same control was extended to matters of diplomatic information. So long as the government press service or censorship was limited to the exercise of these definite functions, it was not criticized, but was on the contrary approved and seconded by the public. Soon, however, items were suppressed on the ground that they jeopardized in some manner the "Sacred Union" of all parties, creeds, and opinions which had been brought about in the face of national danger. This principle was naturally of a vague and elastic bearing, and it was believed to be often invoked on frivolous or merely party grounds. It was especially charged that the censorship was used to strangle any criticism or even discussion of the mistakes of governments and parliament, and to protect from attack any public man no matter what he had done. As a result the principle of the freedom of the press was en-

tirely neglected. Editors or proprietors of the various journals would be called up on the telephone to justify their right to publish matters that had nothing to do with the safety of the state. Many papers were published with large blank spaces pointing to the suppression of items, which actually were of no importance whatever, thus creating an air of mystery and causing unnecessary alarm. The censorship was accused of the most absurd caprices. For example, in an issue of the *Official Journal* of February 7th was published the mention of a Captain, a veteran of 1870, who was wounded for the first time at "X," had taken part in a charge under General Margueritte, was captured at "X," and escaped and finished his campaign in the army of "Z," etc. The letters had been substituted for names of places pertaining to the war of 1870. Many other equally absurd instances were cited by the French press. In April, 1915, however, the appointment of a new official in charge of the French daily papers led to an improvement in the system. The Service at that time comprised about 180 officials, including directors, censors, secretaries, etc., all of whom were military men and it was divided into three branches, namely, for periodicals, for daily newspapers, and for press dispatches, each branch being under the direction of a captain. The rules were communicated to the chief of the Service who entered them in a register which was supplied to each of the chiefs of division, who in turn communicated it to his various subordinates. The chief of the Service had the final decision upon all subjects. The articles censored were cut out and pasted in order that they might be checked up with the papers as published; this done, they were filed.

THE MUTINY TRIAL. The mutiny of the Black Sea fleet in 1918 had its sequel in the trial of the mutineers at Toulon. The verdict surprised the public by its mildness. Out of a dozen who were accused only three of the leaders suffered a serious penalty, and this was only from six to eight years detention. The greater part of the prisoners were sentenced only to a year or two in prison. The verdict was explained by some as due to the recognition that the mutineers were merely the instruments of persons higher up in authority, and that being ignorant and credulous their guilt was not of a serious nature. The comment of the conservative press pointed to certain Socialist members of Parliament as the real culprits, naming certain leaders such as Longuet, Brizon, Cochin, and Alexander Blanc.

THE AMNESTY. The subject of amnesty for all political and military crimes came up in October, and after a long discussion the amnesty law was voted on October 20th. Its provisions were as follows: Full and complete amnesty for all offenses committed before Oct. 17, 1919, by the mobilized troops before their liberation; by fathers and mothers who had a son killed or seriously wounded in the war; by widows of soldiers and marines who had died under arms; by wives of soldiers who had either been badly wounded or cited with honor. It was decided that the law should not apply to soldiers condemned for mutiny or for leaving their post in the presence of the enemy, or to deserters for more than three months at home or for more than six months abroad. Other exceptions were made having to do with forest fires and war

profits. There was a long debate on the question of amnesty for mutineers and for those who had abandoned a post in the presence of the enemy, except when they had refused obedience to the command to march against the enemy. The former minister of war, M. Painlevé, said that the so-called mutinies of 1917 were not of the nature of a plot, but had resulted from a state of exasperation. Certain executions, 25 in all, had taken place, not the great number that had been spoken of. There were also numerous sentences to forced labor and to the public works. Part of these sentences had been already served and he asked that the prisoners be pardoned. A plea was made for the mutineers of the Black Sea. Here, however, the minister of the marine declared that the case was altogether different, for these sailors had not served part of their term. Moreover, the question of discipline was more serious than in the army. This principle was approved. The question of the severity of the court-martials came up and the reports on this subject were declared to be exaggerated. From the beginning of the war there had been 107,000 condemnations pronounced by the court-martials for all sorts of crime, both among the civil population and the military. As there were 7,000,000 mobilized troops the proportion of the condemned was 2 per cent. As to the military prisons, etc., there were in all about 20,000 prisoners. In 1917 there had been 4585 pardons; in 1918, 12,671, without counting 5000 suspensions of penalties. Thus, it was argued, it could not be charged that the government had not been merciful toward condemned soldiers.

CRITICISM OF THE GOVERNMENT. Although the Chamber voted confidence in the ministry after the discussion of Dec. 30, 1918 when the policy of France towards the Peace Conference in respect to Russian intervention was defended by the ministry, the attacks on the government continued. They had mainly to do with the subject of demobilization and the Russian policy. M. Cachin of the Left condemned the government for standing before the world as an international reactionary. As to the demobilization the prime minister informed the Chamber that on February 15th, 1,200,000 soldiers would be discharged, and on March 31st, 2,000,000 more. In regard to the government's attitude toward Russia the Chamber was assured that it had not changed and Deputies were warned against raising useless questions about it during the Peace Conference. Nevertheless the opposition members during a debate on the credits in March joined in sharply attacking the government, aiming especially at M. Pichon on account of the Russian policy and M. Klotz on account of his financial programme, the main points in which are given above under *Finance*. It was reported that the French Minister intended to resign but he retained office nevertheless. The Chamber became restive on account of the lack of definite information in regard to the Peace Conference and in April discontent seemed to threaten the overthrow of the ministry. In both houses of parliament the government was warned against continuing to keep parliament in the dark in regard to the peace terms. The Chamber insisted that the budget could not be framed without knowing what indemnity was to be had from Germany. The government remained firm however and M. Pichon speaking

for the ministry definitely stated that the peace terms would not be submitted to parliament until they had been signed by the enemy. This raised the question of confidence and the Chamber voted confidence by 344 to 166. Meanwhile the government won support by its vigorous policy toward food speculators and profiteers and by favoring measures generally regarded as sane and progressive.

THE NEW DEMOCRACY. A new party was formed under the title of the New Democracy with a programme corresponding to the principles associated with M. Clemenceau, that is to say the crushing of Bolshevism, the purifying of politics, and the insuring of a responsible and competent government. The means which it advocated towards these ends were coöperation among all classes, separation of legislative and executive powers, and elimination of all red tape and political parasitism.

THE RADICAL PARTY. The Radicals and Radical Socialists held their congress at Paris, July 27. Its chief objects were to consider a programme and a report in regard to the doctrines of the party. The presiding officer made an appeal for the closest union of all sections of the party in the carrying out of its social and political purposes. The Radical Socialists of Alsace-Lorraine made a proposal which was accepted unanimously. It was to the effect that the German organization in Alsace-Lorraine must be completely destroyed, and the territory must form an integral part of France; that to that end legislation should at once apply to the departments concerned; that the French rule should be considered as having been in force in principle, and the application of the German law as a temporary exception, that the transition to the new system should be loyally carried out and a democratic policy worthy of the republic should be applied to the liberated departments. As to the attitude of the policy toward present questions, it was summarized as follows: The Radical and Radical Socialist party, being hostile to the reactionaries, conservatives, and disturbers of the peace, appealed to the good will of all and demanded the complete fulfillment of the duty of good citizenship. The sum and substance of their programme was the remedying of the ills due to the war, and the maintenance of the country in the place to which its sacrifices had entitled it. The representatives of the liberated departments offered a resolution which was voted unanimously, calling upon the party to give its earnest support to the earliest possible measures for the relief and reconstruction of the devastated regions, and especially to insist that the government be prompt in payment of damages to farmers, merchants and others who had suffered loss.

NEW SYSTEM OF VOTING. An electoral reform bill was passed by the Chamber in May and later with amendments by the Senate. Its main feature was the abandonment of the voting by districts (*scrutin d'arrondissement*) and the return to the general ticket plan (*scrutin de liste*). Another feature was the application of proportional representation in elections that gave no party list an absolute majority. Amendments to the measure providing for women suffrage were defeated by a considerable majority. From the year 1889 the elections were held on ballot by districts, but under the new system each department was to choose deputies in accord-

ance with its population, that is to say, one for every 70,000 inhabitants of French nationality. After dividing the population by 70,000 the remainder, if it was more than 37,500, was to choose another deputy and if its population entitled a department to more than six deputies, it was to be split into sections, each of which would choose three deputies. Under the old system there had been a second ballot for candidates who did not get an absolute majority, but this was abolished under the new.

THE APPROACHING ELECTIONS. The elections were fixed for November 16th. The mandate of the French Chamber had long since expired. It was elected in 1914 for four years. Of the Senate one-third of the 300 members elected for six years were to be reëlected every two years, but this was not done on account of the war. Thus it was necessary to choose 200 senators and to elect the entire Chamber of Deputies. The strongest group numerically in the last parliament was the Radical Socialist, whose name, however, does not afford any clew to its political principles. The Unified Socialists, though important numerically, were divided: For example, the well-known war leader, M. Albert Thomas, withdrew with 42 others when the members of the Left under M. Longuet refused to support the war; and the majority had passed over toward a radical attitude and were accused of sympathizing with Bolshevism (see SOCIALISM). In the summer there was a plan for fusing the moderate parties against the Royalists on the one hand, and the extreme Socialists on the other. This would consist of groups which according to numerical strength in 1914 would have had a majority. As to the Royalists, reports in the press indicated that they had given up their fight against the republic. The imperialists of former times had virtually disappeared. It was said also that the Catholics had assumed a more conciliatory attitude and accepted the separation of the church and state. On the eve of the elections, the union of the republican parties for a campaign against Bolshevism and extreme radicalism had split off into groups in accordance with the shades of opinion of the members. The first group, consisting of the so-called republican bloc, refused admission to the candidates of the Right. Its leaders were members of Parliament opposed to M. Clemenceau, and included the anti-clerical group. Another party comprised all classes of republicans, including the nationalists and liberals, but excluded the anti-clericals. For while preventing the separation of church and state they disapproved of anything savoring of religious intolerance. Lesser parties were created by the issues of the election, among them the so-called New Democracy (see above), and the party of the Action Française. On every electoral list places were reserved for the veterans of the war. In certain districts the veterans published special lists. On the Socialist lists were placed only the names of those members of Parliament who had declared in favor of non-intervention in Russia, and in the Soviet government. The dissenting Socialists who had voted for the Peace Treaty and had not taken a firm attitude in favor of the Bolsheviks were accepted as candidates by the republican Left.

THE TREATY AS AN ISSUE. Before the October elections the main points under discussion

had to do with the treaty. In France the sharpest criticism of the treaty came from those who did not believe the terms were severe enough against Germany or strong enough to guarantee the future of France. The government was blamed for not having gone further in the very direction in which it was considered by liberal opinion and even by moderate elements in Great Britain and the United States to have gone too far. The main points in which the treaty was criticized in the French Chamber during the debates were as follows: The protracted course of the Peace Conference which resulted in bringing about great confusion in international relations. The weakness in the matter of the Saar Basin which ought to have been annexed unconditionally to France. The insufficient reparations exacted of Germany and the lack of the means of constraining her to pay. Here it was held that M. Clemenceau ought to have insisted on obtaining from the Allies economic and financial arrangements favorable to France. Insufficient guarantees of future security. Here Marshal Foch was quoted as having demanded the permanent occupation of the bridge-heads on the Rhine. Although the Socialists took the opposite position and denounced the treaty as ultra-nationalist, the sort of criticism that was generally expressed was in the spirit of the points above mentioned. The Socialists refused to take part in the Peace Committee because they wished to ignore the treaty; they considered it a treaty of violence.

The government was blamed for the discontent of Poland, and especially for failure to do justice to the Czecho-Slovaks and the Rumanians. The former were described as among the best and the most faithful friends of France who chiefly for this reason had been zealous supporters of the Allies. The Allies had decided to exact the payment of 1,500,000,000 francs from states which had been formed out of Austria-Hungary. The Czecho-Slovaks were to be made to pay 50 per cent of this sum on the ground that they could afford to do so, being practical, industrious, and economical. It was said that they resented this and there was an element in France which made much of it. The Rumanians were also discontented. M. Bratiano exasperated by the ill-will that he had encountered was obliged to resign. He complained that Rumania was completely misunderstood. In 1878 Russia acquired Bessarabia which had been torn from Rumania, who asked if the Allies were going to let the occasion pass for repairing this wrong. The Allies were criticized in the French Chamber for dealing too gently with Austria-Hungary and sacrificing the interests of Rumania. The policy of General Smuts was also criticized in France and it was asked whether England would proceed in her design of creating an Austro-Hungarian empire. She was accused of a policy of irritation against the Rumanians and also against the Czecho-Slovaks, and of preventing them from taking Budapest, with the result that Bela Kun was tyrannizing over the country. These are only a few examples of the criticisms in the Chamber and press. They were diverse and numerous, but in general followed narrower lines than in Great Britain or the United States, emphasizing always the danger that France and those countries which were especially friendly to her might not be getting all that they deserved. There

was comparatively little criticism based on liberal views or reflecting any of the sentiments in regard to democracy, open diplomacy, and the evils of imperialism, which had been heard during the war. To the liberals it seemed that the attitude of France, so far as their leading newspapers and parliamentary discussions expressed it, indicated that nothing had been learned from the war and that the old aims of European diplomacy were exactly as powerful as ever; in short, that morally and politically her principles were the same as those for which the entire world had been remorselessly condemning the Germans. The government's reply to its critics was in general that while the treaty was not satisfactory in all respects it was the best that would be obtained; that it was not the fault of M. Clemenceau that he alone could not determine the conditions of the peace. President Wilson had insisted upon the preliminary establishment of the League of Nations, and had put off for several months the working out of the treaty. President Wilson in conformity to his programme of the 14 points had opposed the annexation of the Saar Basin. Mr. Lloyd George and President Wilson had also insisted on other points and M. Clemenceau could not override them. In general there was little confidence in the League of Nations among Frenchmen, though they recognized its good points and gladly adopted it as a measure that might help to keep the world at peace. The real guaranty in their eyes was the special alliance of France with England and the United States. This, the government pointed out, was the work of M. Clemenceau.

M. ARISTIDE BRIAND. In the latter part of the year M. Briand was under discussion in the press as a possible successor of M. Clemenceau, and especial interest was aroused by an interview in September in which the former prime minister expressed his political views. He said that the *Union Sacrée* sprang from the war, and was in all respects admirable, and that it was necessary to prolong it as long as possible. Union for defense of national interest could exist, however, along with discussion of the different ideas before the nation, and no pretense of union ought to check that discussion. The choice of the new representatives of France in the approaching elections was of the greatest possible importance, for upon them depended in large measure the future of the country. If out of mistaken regard for the *Union Sacrée* France should choose a parliament without political principles or programme, the result would be disaster at home and discredit abroad. France must play her rôle as the torch bearer of liberty, social justice, and orderly progress. A dictatorship, whether collective or individual, was not to be thought of. Whether it came from the extreme Left or the extreme Right, France was certain to suffer from it. The extremists were saying that they did not wish to associate with any one. That was logical at least, but they would soon find that by themselves the task before them was too heavy. On the extreme Right, on the other hand, appeals were made for the *Union Sacrée*, but at the same time they said they remained monarchists and did not in any way renounce their hope of a return to the old régime. In effect they asked every one to forget his republican ideals. The country ought not to be the victim of this delusion. He hoped

that the electoral reform would supply the country with the means of declaring its will anew, more completely and clearly than before. It was now possible for the country by means of a larger ballot and proportional representation to give the voters the chance to decide, not only upon matters of small importance, but upon political ideas. The republican party united and solidified with a clear, bold programme could now avail itself of the suffrage, and maintain the conquests that it had made in the past—a programme including the revision of the constitution, in order to secure the executive power from division of authority and make it responsible and capable of governing under the vigilant and permanent control of the Chambers. There should be administrative reform also, largely decentralizing the administration, and providing for regional bodies where professional interests would be largely represented. Then there should be a financial reform that would enable France to encounter the vast financial problems following the war, and social reforms methodically worked out to systematize the relations between employers and workers. In many quarters these views were attacked as hostile to the Sacred Union, and alienating the members of the Right who had rendered good service to France during the war, and whose patriotism was unquestioned.

ELECTIONS. The elections of November 16 registered a complete triumph for the ministry. They were interpreted by the supporters of the government and by the leading newspapers as a distinct ratification by the people of the treaty of Versailles, and a repudiation of those elements which had attacked its terms and had blamed M. Clemenceau for his course in the negotiations. In certain elections the issue was squarely presented, as for example in the contest between M. André Tardieu and M. Franklin Bouillon, the former being one of the negotiators of the treaty, and the latter a determined adversary. M. Tardieu was elected. Another feature emphasized by the triumphant element was the complete overthrow of the Radical Socialists, which was interpreted as a proof that the country was disgusted with Caillaux, Malvy, and their followers, and that they approved the energetic course of M. Clemenceau against the so-called defeatists. In the department of the Sarthe which was Caillaux's own district, the entire Radical Socialist list was beaten. As to M. Clemenceau they regarded it as a complete vindication. They said that no one had ever before more completely embodied the spirit of the nation, and that both during the war and since he had really spoken for the people and soldiers of France. The success was also taken to indicate a spirit of unity in the country, for on the eve of the elections there had been formed the National *bloc* above mentioned against the so-called defeatist element of the Socialists and others on the extreme Left. The Socialist candidates were defeated. The Socialist party was attacked by the others for its course, both before and during the war. The Socialists were blamed for the unprepared state of the country, for the attacks that they made on the high command, and for the pacifist and pro-German tendencies of the element represented by Longuet and Brizon, also for the moral support accorded to Caillaux, and the systematic attacks on the Clemenceau ministry. But it was especially charged

against the Socialists that they had openly supported Russian Bolshevism, and the friends of M. Clemenceau laid especial stress on the elections as a pronouncement against this policy. It was said that the Socialists went into the contest with the support of the Bolsheviks. It was charged against leaders like Renaudel and Longuet that they had excluded from the party those who had contributed to the national defense, while they recognized as orthodox members all the pro-Germans and the Bolsheviks. In general the elections of November 16th were taken by the conservative party to mean that France insisted upon unity and peace with a view to regaining its former prosperity. It was a victory for law and order according to them. Work could not be resumed in the midst of revolutionary disorder. France had pronounced against the beginnings of the Social revolution. Bolshevism was a German invention and had served Germany during the war by taking Russia out of the Entente, and it would serve Germany during the peace if the revolutionary propaganda bore fruit among the victorious nations. In France it was plainly seen that this propaganda was at work just as it was at work in England and the United States. By the conservative classes the election was regarded as a definite stamp of popular disapproval on the disturbing tendencies. The attitude of the American press in general was about the same, for it did little more than repeat the conclusions of the conservative press in France which almost invariably rejoiced over the victory as a triumph of the moderate parties. One of the great French journals declared that now it was the true France which had spoken.

The *bloc* formed by the anti-revolutionary groups for the defeat of the Unified Socialists had been successful in that the people in general voted for anti-Socialist candidates. They did not, however, carry out the plan urged by the National Republican *bloc* and put forward a single list of candidates from among its members. There were generally two lists and often several. In spite of this division of anti-revolutionary forces the Unified Socialists were unsuccessful and the net result of the election was that an enormous majority of anti-revolutionists of one shade or another was returned. On the other hand the actual number of Socialists' votes appeared to have risen from 1,400,000 in 1914 to 1,700,000 in 1919; and it was argued that the old system of single-member constituencies would have resulted more favorably to the Socialists. This threatened to give rise to a claim on the part of the Socialists that an attack had been made on their interests and it was evident that they would appeal to the working classes and make as much as possible out of this grievance.

THE NEW CHAMBER. The Chamber after the elections was constituted as follows according to the estimates available at the beginning of December which however were defective because the returns from the invaded regions were not yet available and because the political opinions of a number of the deputies had not yet been ascertained: Unified Socialists, 55 including 25 new; Dissident Socialists, 5; Republican Socialists, 26 including 9 new; Radicals or Radical Socialists, 144 including 81 new; Republicans of the Left, 111 including 43 new; Progressists 106, including 35 new; Liberals 65 including 27

new; Action Française, 3 new; Independents, 3 new.

M. CLEMENCEAU ON FOREIGN POLICY. The session of December 23d brought an interpellation by M. Marcel Cachin of the extreme Left in regard to the results of the recent London conference, to which M. Clemenceau replied immediately. He said he would speak freely of everything except the question of military guarantees. He quoted Lloyd George's declaration that France and England must be bound together closer than ever and that this union would insure the peace of the world. As to the question of Fiume, the difficulty arose from the fact that it had been promised to Croatia and that this promise had been countersigned by Italy. At the London meeting, representatives of the United States, France, and England had summed up the point of view of President Wilson and a note to this effect had been presented to the Italian foreign minister. At the present moment Italy was making a final effort to reach an understanding. These were the results of his visit to London. He himself, he added, had taken a stand on behalf of Poland and Czechoslovakia. One of the last decisions of the Peace Conference had granted Eastern Galicia to Poland only for 25 years and by virtue of a mandate. As a result Poland had a grievance against the Entente. He had tried to have the matter reconsidered and Lloyd George had finally consented that a new proposal should be placed before the Conference and that the "character of a temporary mandate over Eastern Galicia be suspended." As to Russia he declared that no peace would be made or negotiations carried on with the Soviet government; that not only was its system barbarous and atrocious but that it had set up first a single dictatorship and then a dictatorship of committees, and that it was based on a principle that "no French Chamber would ever accept." He referred to Russia's abandonment of the Allies in the war and to the enormous sums spent by France and England against the Bolsheviks in the hope that groups would be found endeavoring to defend their country and their liberty. These expenditures must now cease, "but as the Russian anarchy is incompatible with the establishment of a durable peace in Europe it has been necessary for the purpose of preventing the spread of the contagion to establish the so-called barbed wire blockade." It had been decided to form an alliance with every people attacked by the Bolsheviks, and to aid them by supplies of every kind. In respect to Rumania he regretted that she had not proceeded in harmony with her Allies but he said that this result had now been achieved. As to Constantinople he could not reveal the nature of the discussions, lest it might embarrass negotiations that were now in progress. The Chamber voted confidence by 458 to 71.

ALSACE-LORRAINE. The session of parliament of December 8th which marked the opening of the new Chamber was an important and significant event. The deputies from Alsace-Lorraine took their places in the parliament for the first time since the Franco-Prussian war. The address was made by a senior member, M. Siegfried, in which he paid tribute to the work of M. Clemenceau. The Alsace-Lorraine deputies were received with acclamations. Throughout the various formalities however a consider-

able number of members including Socialists remained seated.

FRANCE AND THE VATICAN. It was reported at the close of the year that plans for the resumption of diplomatic relations with the Vatican were under discussion at Rome between the government and the Vatican. They were however not of an official nature but merely preliminary. According to the reports in the press the Vatican was disposed to accept the separation of the church from the state in France but required a guarantee that this policy would not be carried out in a spirit of persecution. On the other hand the French government was represented as claiming that French bishops should henceforth be nominated only with the consent of the government and also that those bishops nominated while relations between the government and the Vatican had been interrupted should be recalled if their nominations were not acceptable to the government.

SEE NAVAL PROGRESS; LABOR LEGISLATION; FINANCIAL REVIEW; WAR FINANCE; OCCUPATIONAL DISEASES; EXPOSITIONS; FRENCH LITERATURE.

FRASER, SIR ANDREW HENDERSON LEITH. British officer in the Indian service, died at Edinburgh, Scotland, February 26th. He was born Nov. 14, 1848, educated at Edinburgh University and entered the Indian civil service 1871. Among the important positions that he held may be mentioned that of Chief Commissioner of the Central Province (1889), president of the Police Commission (1902) and Lieutenant-Governor of Bengal (1903-8). He wrote *Among Indian Rajahs and Ryots*.

FRATERNAL INSURANCE. See INSURANCE.

FRAZER, COMMODORE REAH. Naval officer, died in Brooklyn, N. Y., December 30. He had seen 47 years' service in the navy. He was born in Lancaster, Pa., in 1853, and entered the service in his youth. During the late war he was disbursing officer at the Brooklyn Navy Yards.

FREER, CHARLES LANG. American capitalist and art connoisseur, died in 1919. He was born at Kingston, N. Y., in 1856 and engaged in railway work and manufacturing in Detroit, Mich. Having made a fortune he retired from business and devoted himself to the study of art, making a valuable collection which he afterwards presented to the Smithsonian Institution at Washington, along with a sum of \$1,000,000 for a building.

FRENCH ACADEMY. See ACADEMY, FRENCH.

FRENCH CONGO. Now FRENCH EQUATORIAL AFRICA (q.v.).

FRENCH EQUATORIAL AFRICA. (Formerly FRENCH CONGO). A French colony in equatorial Africa, with Kamerun on the northwest, Wadai on the north, Bahr-el-Ghazal on the east, Belgian Congo on the southeast, and the Atlantic on the west. By convention, dated November 14, 1911, France agreed to cede certain parts of the colony to Germany, in return for German recognition of the French Protectorate in Morocco, the area ceded being about 107,270 square miles, with a population of about 1,000,000. The total area is about 669,000 square miles, containing a population estimated by the latest figures at 9,000,000 of negro and other races. The portion ceded to Germany has an area of about 6450 square miles. Sleeping

sickness is very prevalent in the district, and is fast decimating the population. Until recently, French Equatorial Africa consisted of three colonies, the Gabun, (capital, Libreville); the Middle Congo Colony, (capital, Brazzaville); and the Ubangi-shari colony, (capital, Bangui).

Financial and administrative autonomy under a lieutenant-governor with an administrative council obtains. On Apr. 12, 1916, the Chad territory, which had been a dependency of the Ubangi-shari colony, was made a colony. For 1918 the budgets showed the following figures: General budget, 3,960,000 fcs. Loan fund, 1,508,700 fcs. Port Gentil and Libreville, the chief ports, have considerable shipping. Two steamship lines visit these ports. The central African telegraph line connects Brazzaville with Loango, which is in communication with the English Atlantic cable. The total length of the line in operation is about 2366 miles. There are several mission schools with an attendance of 3600 pupils, and 94 public schools, with about 3900 pupils. The total imports in 1917 were estimated unofficially at 4,670,530 fcs. Exports, 3,662,275 fcs. The exports, in order of their importance, are: rubber, ivory, ebony and other woods, palm nuts and palm oil. On the north-east of Lake Chad, is the state of Kanem, which was completely subjected to France in 1903, and was recently made a district of the Shari territory, with Maô for its capital.

A French force occupies Arada, some miles to the north of the capital, Abeshr, which is in communication with Benghazi, on the coast of Tripoli by caravans. The province is under a governor-general assisted by a council of government.

FRENCH ESTABLISHMENTS IN OCEANIA. A colony in the southern Pacific Ocean, belonging to France, consisting of scattered groups and single islands. Estimated area, 3998 square kilometers. Population in 1919, about 81,200. Capital, Papeete, in the island of Tahiti. The Society Islands (Tahiti, and Moorea, the largest); the Marquesas, the French Leeward Islands, and the Gambier, Tubai and Rapa groups include the main groups. Vanilla and copra are the chief exports. Tahiti, the chief island, known mainly for its scenery and the material it affords many romantic writers, has as its capital, Papeete, with 3617 inhabitants, of whom 1909 are French. In 1918 there was a severe influenza epidemic, which recurred again in 1919, though far less serious, for the first epidemic wiped out nearly one-seventh of the population.

According to reports published at the close of the year 1919, the condition of the Marquesan islands showed that the administration had completely neglected them. Although they were the richest group belonging to France in the southern Pacific, they had plainly retrograded. The population fell off from 3117 in 1912 to about 2500, owing chiefly to the diseases which ravaged the country. There was no police service and there were no schools and steamers had ceased to run between the islands and Tahiti. Measures were recommended for immediate improvement of conditions, the main point being to give the group its own administration instead of leaving it under the administration of Papeete which was 750 miles away. Other measures proposed included the promotion of colonization by

the French and the creation of a marine transport service.

FRENCH GUIANA (CAYENNE). A colony and penal settlement on the northern coast of South America belonging to France. Area, 88,240 square kilometers (34,069 square miles). Population in 1919 according to unofficial figures, 49,231. Capital, Cayenne, which is the chief town and seaport, and had a population of 13,619 in 1919. Silver, phosphate and iron are produced in some quantities, but placer gold mining is the chief industry. The annual transportation to the colony averages between 4000 and 5000, and about 1000 to 1500 are freed each year.

FRENCH GUINEA. A French colony of West Africa. Capital, Konakry, with 6623 inhabitants. The chief commercial centre is Kanakan. Other towns: Boké, Kindia, and Dubreka. The chief product and principal export is rubber. The value of the total foreign trade of the colony in 1918 was \$6,919,551, as against \$7,073,497 for 1917, a decrease of \$153,946. (In this report, francs are converted to dollars at normal exchange, one franc equalling \$.193.) The total imports amounted to \$4,444,785 for 1918, as against \$4,122,371 for 1917, an increase in value amounting to \$322,414. The total exports in 1918 were valued at \$2,474,766, as against \$2,951,126 in 1917. Movements of specie in 1918, included imports aggregating \$3088, and exports amounting to \$1,002,838. The share of France in the foreign trade of this colony in 1917, was 38.5 per cent. In 1918, 34.58 per cent. In 1918 there were 124 entries, with a tonnage of 153,246, and 7375 tons discharged. Of the total value of exports in 1918, France and her colonies received 67.11 per cent as compared with 68.28 per cent of the 1917 exports.

FRENCH INDIA. Five French dependencies in India, with an area of 513 square kilometers, and a population, estimated in 1919 at 268,952, by unofficial figures. They are Pondicherry, Caracao, Chandernagar, Mahé, and Yanaom. A senator and a deputy represent them in the French Parliament. Local revenue and expenditure (budget of 1918) was 1,963,500 rupees.

FRENCH INDO-CHINA. A French dependency in southeastern Asia, consisting of the following five states: Annam, (159,800 square kilometers, with a population in 1914 of 5,200,000); Cambodia, (175,450 square kilometers, with a population of 1,634,252); Cochinchina, (56,965 square kilometers, with 3,050,785); Laos, (290,000 square kilometers, with 640,877); Tongking, (119,750 square kilometers, with 119,720); also the leased territory of Kwangchow-Wan, (1000 square kilometers, with 168,000). Capital, Hanowí, in Tongking, with 113,676 inhabitants. Other towns, Cholon, 191,665; Bindinh, 75,000; Saigon, 72,000; Pnom-penh, 54,621; Hué, 65,000; Vien-tiane, and Haithong, 27,000 each.

Into Great Britain in 1917, the imports from Indo-China amounted to £73,514, and the exports from Great Britain, £637,276, chiefly cotton. In 1918, there were no imports and the exports amounted to £823,549. For 1918 the revenue and expenditure for the general budget balanced at 47,166,050 piastres. The outstanding debt of Indo-China, Jan. 1, 1917, amounted to 345,913,000 fcs. There was a military force that totalled about 25,514. There is a railway

from Saigon to Mytho. The total length of railway was 993 miles, according to the latest figures, 747 miles being government lines, and 246 miles private lines. There were 8719 miles of telegraph line, with 376 telegraph offices, and telephone systems aggregating 270 miles of line. There were 363 post offices.

The Bank of Indo-China, with an authorized capital of 48,000,000 francs and reserve and redemption funds amounting to 33,500,000 francs, has till 1920 the privilege not only of making advances on security, but also of engaging in financial, industrial, or commercial enterprise in Indo-China, and New Caledonia. The monetary unit, the piastre, is usually worth somewhat less than 24d. There are two bronze coins, one equal to 1/100 and the other 1/375 of a piastre. Various general movements toward the stimulation of production, the development of resource, and the betterment and enrichment of the country, are under way.

FRENCH LITERATURE. War literature was gradually crowded out of existence, or at least there were astonishingly vigorous attempts on the part of the writers as well as on the part of the public to reinstate in the place of honor non-war books. But of course the war was not an event that could be brushed aside, even in literature, and there were still enough war publications to warrant special treatment.

WAR LITERATURE. A large part of the war books should be classed under post-war-literature, as dealing with problems of after the war. Such was, for example, Porché's play *La Jeune Fille aux Jours Roses*; after his great success with *Les Butors et la Finette*, Porché tried a second allegorical play in which he makes fun of the bureaucracy of government officials, and of the pedantry of scholars, and wants youth to rejuvenate France. The play was very moderately successful. Many war novels deserve mention: René Bazin's *Nouveaux Oberlé* deals with the family problems in Alsace-Lorraine during the war: the son who had cast his lot with Germany (in perfect good faith) finally understands that he was mistaken. Barbusse's *Clarté* is partly a reëdition of the realistic war scenes that made *Le Feu* famous, and partly the story of a man who saw "light." War made him realize that people have had nothing to say in matters of politics and that it would be better if they did have. Cyril Berger, in *Pendant qu'il se bat* . . . proves to be a disciple of Barbusse (who prefaced the book). And Léon Werth could perhaps also be called a disciple of Barbusse in *Clavel, soldat*: with much dialectic he reasons away from the surface of the globe such nonsense as patriotism, capital, charity, etc., and he dreams of a golden age with an anarchistic return to the life of nature (Rousseau converts him). More violent in tone is H. Champley's *Crée donc société*. The finest of the belated war novels is, by common consent, J. de Granvilliers's *Le Prix de l'Homme*; it can be compared with some of the very best war novels. A young man longing for something that will make life worth while finds that under no conditions as in war can he give so well the full measure of what is best and strongest in him; for stirring descriptions the novel is equally remarkable. Ch. Briand's *Le Sang* is in the same vein, almost mystic in its enthusiasm. A. Rédier (author of *Méditations dans la Tranchée*) offers a novel *Le Capi-*

taine in which he discusses how the soldiers who fought so well will now face the problems of normal life. In his *Grandgoujon*, a grotesque figure of a none too intelligent reservist during the war, R. Benjamin has not risen to the excellence of his *Gaspard*. M. Nadaud tells us the continuation of *Chignole's* story and the lamentable end of that hero of the air, in *Frangipane et Cie*. Two of the most admired books of the year were *Croix de Bois*, by Roland Dorgelés (Prix de la Vie Heureuse), and *Les Tranchées de Pelissanne*, which gives the description of a sunny town in Provence where they trained soldiers, especially "territoriaux," to dig trenches and throw grenades, written with exquisite humor by Paul Souchon. Very well received was Lamy Quantin's *Une héroïne limousine*, the scene of which is laid in turn in a town of Limousin and at the front. Gabriel Maurière's *Au Burlingue* (military office) gives in the language of a girl stenographer anecdotes of the military life in the rear, slackers' stories, etc. A woman, Annie Vivanti, in *Vae Victis*, treats with much pathos the problem of the "enfant du crime." Pierre Hamp, in his *Métiers blessés* tells of the awful industrial wounds of France, but in his usual strong and optimistic temper. Much praise must be given to Colette Yver's *Les Cousins riches*. The cousins who save from ruin a family of French manufacturers by their remarkable industrial skill typify Americans in their relations to France. It is a most intelligent study of the reasons why French and Americans in many ways complete each other wonderfully, but owing to some "mystère des races" would be well advised to mingle without mixing. We can only mention by title several other good novels dealing with the war, or after-war: J. H. Rosny, jeune, *Mimi, le profiteur et le poilu*; René Dumesnil, *L'Absence*; B. Vallotton, *Ceux de Barivier*; Elie Dautrin, *L'Absent*; Louis Dumur, *Nach Paris*. Collections of short stories: Pierre Grasset, *Coeur et Guerre*; A. Arnoux, *Le Cabaret*.

Duhamel, the writer who owes the greatest debt to the war for the fame he acquired by it, publishes *La Possession du Monde*, in which he gives up story-telling for the philosophical considerations—probably to the regret of the public. His theory comes to this: Do not look for pleasures gotten by riches, or for conventional rejoicings; if the pleasure is in you, you own the world; moreover there is joy even in suffering.

Many interesting war diaries and descriptions were put on the market. Among the best were: Frères Tharaud, *La Relève*; Robert de Flers, *Carnet de Route*; Comm. Raynal, *Fort de Vaux*; Tessan, *De Verdun au Rhin*; Robidet, *Croquis de Guerre*; Laurentin, *Le Sang de France*; Delacommune, *L'Escadrille des Eperviers*; R. Milan, *Matelots aériens* (3d series of *Vagabonds de la Gloire*); E. Bourcier, *Bombardier Camus* (aviation); R. Jubert, *Verdun*; Fonsagrive, *En Batterie*. Very painful are: Blanchet, *En Représailles*; Martin-Marny, *Quatre ans avec les Barbares* (in Lille); Droulers, *Lille pendant l'Occupation*; and Niox, *Mes Six Evasions*. R. Legay contributes a good story of life at the rear in *Ronde des Bleuets*; in *Rouletabille chez Krupp*, G. Leroux gives a new series of his amusing detective stories. Judith Gautier has a pretty story of a young Belgian *Un Général de Cinq ans*. Also deserving of mention are:

Barrès, *De la Sympathie à la Fraternité des Armes* (about America); Giraudoux, *Amica America*; Gyp, *Journal d'un cochon de pessimiste*; H. Ghéon, *L'Homme de la Guerre*, *Témoignage d'un Converti*.

Among the poets of the war may be noted: Rostand, *Le Vol de la Marseillaise* (of unequal merit); Verlet, *De la Boue sous le Ciel*; J. Normand, *Drapeaux Déployés*; J. Suberville, *Le Fife de Bernadoux*, and *La Fosse aux Lions*; R. Hugues, *Cette Guerre*; Bourcier, *L'Age de Sang*; Boyer d'Agen, *Cinq Paralipomènes à la Divine Comédie* (Tercets in honor of Foch, Pétaïn . . . the Kaiser, etc.); Edmond Fleg, *Mur des Pleurs*; L. Durtain, *Lise* (rustic tale of war time); and many others.

Literature on war literature: Baldensperger, *L'Avant-guerre dans la Littérature*; Albert Schinz, *Le Roman Militaire en France de 1870-1914*. Jean Vic, *La Littérature de Guerre* (2 vols. of bibliography); finally a book of considerable importance, H. Esnault, *Le Poilu tel qu'on le parle*.

THE THEATRE. There is nothing that could suggest any common ground of inspiration; nothing original either, but rather the old themes and the old methods. In Sorbet's et Cahuet's *Roses Rouges* which deals with people who have been in the war, although the war has nothing to do with it, a nurse claims her rights to an officer's heart against a creature of low rank. *Pasteur*—a series of tableaux of Pasteur's life, written by Sacha Guitry the playwright for his father Lucien Guitry, the actor, presents an example of the French facing the period of reconstruction. Bataille's *Socurs d'Amour* treats an interesting theme: A woman burning with love for one who belongs to another, suppresses her sensual love, develops one that is solely platonic, and tries to be a "soeur d'amour"; she is a Pauline "frénétique." Zamacoïs' *Monsieur Césarín*, *Ecrivain public*, is a delicate and romantic play of the Musset-Banville-Rostand kind. St-George de Bouhélier's *La Vie d'une Femme* on the other hand is of the tragic kind; while Géraldy and Laveline's *Princesse* has been called "Shakespeare for Boarding schools"; it is the story of a little princess who gives up her love for reasons of state—a new Bérénice. Gandera, author of rather risqué plays, surprises us by giving virtuous advice to young girls lest they be eaten up by wolves, in his *Chaperon Rouge*. Kistemaekers, the powerful author of *La Flambe*, tries his hand very successfully on a farce, *Le Roi des Palaces*, the "roi" being a porter in a big hotel. Grivet gives a *Néron*; Kerst and Berteaux, *Loyauté*. A series of short plays have won praise, as Rivoire, *Sourire du Faune*, Courteline, *La Cruche*. As to Maurice Rostand's *Casanova*, it was hissed from the stage by unanimous consent of the critics. The Théâtre d'Orange opened again and gave *Horace* and *Les Noces Corinthiennes*. Hugo's *Mangeront-ils* (of the Théâtre en Liberté) and Banville's *Esopo* were put on the stage for the first time with remarkable results. See Brisson's *Théâtre pendant la Guerre*, and Mortier's *Dramaturgie de Paris*.

POETRY. A very abundant crop. The most discussed collections are by Jules Romain, some praising him to the skies (like Duhamel), but most critics being repelled by his conceit, the vagueness of the thought, and the difficulty of grasping the rhythm. In the first collection,

Europe, he asks: What of the old continent? the poet finds a lack of many things, but suggests no remedy; the second, *Puissances de Paris* is an attempt to discover the poetry of a street, of an autobus, of any public place where the "people" of modern Paris might reveal their originality; it sounds like obscure Whitmanism or warmed up Verhaerenism. Claudel in his *Messe de Là-Bas* sends from Brazil where he went on diplomatic service his contribution to the French poetry of the year; he also publishes a poetic dialogue *L'Ours et la Lune*. Francis Jammes, in his *La Vierge et les Sonnets* (26 sonnets) sings in his graceful way Notre Dame de Lourdes. The "Prince des poètes" Paul Fort continues his rapid production of *Ballades Françaises*, the two last volumes being *Les Enchanteurs* (Merlin and others), and *Chansons à la gauloise sur la vie, le rire et l'amour* . . . less and less gold and more and more sand. Out of the numerous titles the following may be mentioned: Spire, *Le Secret*; Moussiniac, *L'Echarpe dénouée*; J. Roux, *Lampe devant l'Autel*; Palgen, *Petits poèmes d'amour*; Roger Allard, *Apparement des Jeunes Filles* (songs of young love with no false shame); G. A. Masson, *Mille et unième Nuit* (Oriental poems); Supervielle, *Poèmes* (disciple and protégé of P. Fort); René Kerdyk, *Les Oiseaux Mutilés* (with interesting attempts at innovations in rhythm); R. Genty, *Les belles Amours* (style Watteau); G. Nigond, *Livre de Thomas Gagnepain* (pretty poems in honor of the man who tills the soil); etc., etc.; two good collections written by women: Yve Blanc, *Le long de la Route*; Baronne de Brimont, *Mirages* (with occasional bold innovations in versification).

NOVEL. Let us first mention two books of childhood memories by two of the best writers of to-day, Anatole France's *Petit Pierre*, (in the same vein as *Pierre Nozière* et *Le Livre de mon Ami*); and Pierre Loti's *Prime Jeunesse* (who had already written *Le Roman d'un Enfant*). Other volumes containing a good deal of autobiographical material are: Willette's *Mémoires*; Francis de Miomandrè, *Volage d'un Sédentaire* (style of Sterne's *Sentimental Journey*); the Brothers Tharaud's *Rabat ou les Heures Marocaines*—one of the fine books of the year; Maeterlinck's *Sentiers dans la Montagne*, one more of those books of sweet humanitarianism to which he has treated us in recent years; Jean Aicard offers a sort of historical novel of great originality, *Gaspard de Besse*, a French Robin Hood of the eve of the Revolution, good to the poor and terribly hard on the lords; he died on the scaffold. Romain Rolland tries to reestablish contact with the reading public of France in a "neutral" book, written before the war, *Colas Breugnon*; it is a diary of a cabinet maker of the 17th century, suffering all sorts of mishaps at the hand of destiny, but going through it all with a joviality which is well-nigh heroism. Ch. Géniaux continues the series of gloomy novels that brought him fame with *La Famille Messal*; the story reminds one much of Balzac's *Recherche de l'Absolu*—a man of genius tyrannizes over his family and in their veneration for him they endure everything. A. Jaloux's *Fumées dans la Campagne* has received much praise—a rather intricate love story under the sunny sky of Provence. Francis Jammes speaks most gracefully of God to his public of mondains, in two novels, *Roses de Marie*, and *Le Curé*

d'Ozeron. Pierre Mille does not renew his style at all, we recognize Barnabas in the "ogre bon enfant" of *Nas'r Edin et son Epouse*. Abel Hermant dispatched another book, this time about a young Frenchman landing in Oxford and growing wildly enthusiastic over Whitman; it is called *L'Aube Ardente*. By way of contrast we may place here Estaunié, whose name spells quality against quantity, and who offers *L'Ascension de M. Baslèvre*. A. Lichtemberger in *Le Coeur est le même* tells with much humor the adventure of a scholar in the forties who falls in love with a very modern American girl. H. Bachelin has two more of his sober and excellent studies of the humbler classes, in *Serviteur*, and in *L'Eclaircie*, the story of a little hunchback girl peasant, who after a hard life sees in marriage a bright spot on the horizon. A series of books of a peculiar kind, evidently meant to react against the feverish unrest betrayed by so many writers, is Marcel Proust, *A la Recherche du Temps perdu*, which describe the sensations of a man who refuses to be hurried through life; his second volume is called *A l'Ombre de la Jeune Fille en Fleur*—a reverie in the style of the 17th century *carte de tendre*. An entirely different viewpoint is taken by Ch. H. Hirsch, who in his *Petit Louis, Boiseur*, claims that "Tous les hommes seraient meilleurs si tous les hommes boisaient." We now come to what may be considered the chief literary event in the domain of the novel, namely the rapid rise to fame of Pierre Benoit, with his two romans d'aventure, *Königsmark* (which is a romanesque spy story on the eve of the war), and *L'Atlantide*—a sort of combination of Stevenson and the Arabian Nights style. The success of the books leaves no doubt as to the taste of the public now, but it may be just a passing fad. Another book written by newcomers in literature has found much favor too, but rather with the educated public, *Le Livre de Goha le Simple*, by Adès and Josipovici. It is an exotic novel on Egypt and by two men who have lived in Egypt as Egyptians. Many have urged the Académie Goncourt to crown this book; but other novels have been proposed for the same reward, such as A. t'Sertevens, *Les sept parmi les Hommes*; Variot *Le Sens des Autres*, and several war books. Some of the best novels written by women this year are: L. Faure Favière, *Ces Choses qui sont vieilles*; Mme. Bruno-Ruby, *L'Exemple de l'Abbé Jouve*; H. Charasson, *Attente*; Mme. Raymonde Machard, *Tu Enfanteras*; Elissa Rhaïss, *Sâada, la Marocaine*. In this domain as in others the output has been enormous. At the risk of being unjust we venture to give a special mention to: P. Guitet Vauquelin, *L'Amour Exige*; G. Rageot, *La Faiblesse des Forts*; R. Chauvelot, *Roman d'Aventure à Java* (scientific approach to the problem of heredity); Andrée Mars, *Tu Aimeras dans la Douleur*; L. Verneuil, *L'Erreur*; Jeanna Landré, *Madame Poche ou la parfaite Créature* (a good caricature of the "femme gendarme" who has the best of intentions, but is a pest none the less). Children are the heroes in A. Machard, *Trique, Gamin de Paris*, and *Poucette, le plus jeune Détective du Monde*; also in F. Carco, *Bob et Bobette s'amuse*. P. Bourget has a volume of short stories, *Justicier*; and a posthumous volume of short stories by Mirbeau, *La Vache Tachetée*, was published. Finally an edition of an early story by Jules Renard, *Les*

Cloportes, of 1889, shows us several first sketches of characters which have since become famous, as Poil de Carotte.

CRITICISM AND LITERARY EVENTS. Evidently a quantity of books ready in 1914 have now been thrown on the market, for many of these volumes presuppose long and arduous study impossible in time of war: F. Brunot, *Le Français en France et hors de France au 17^{me} siècle*; Foulet, *Syntaxe du Vieux Français*; Hugo P. Thieme, of the University of Michigan, publishes his *Essai sur l'Histoire du Vers Français*. In the field of literature, Chamard gives a new translation of the *Chanson de Roland*; and Courbet an edition of *Poésies Françaises et Latines de Du Bellay*; Bauma, *Molière et ses Dévots*; L. Dimier, *Buffon*; Marquis de Roux, *Pascal en Poitou*; Marsan, *Beaumarchais et les affaires d'Amérique*; L. Ducros, *J. J. Rousseau* (vol. II and III); E. Seillière, *Les Etapes du Mysticisme passionnel*, (Rousseau, Chateaubriand, Stael, Byron); Jean Vic, *Idées de Dufresny* (editor of the *Mercur de France* in the 18th century); L. Pingaud, *Jeunesse de Nodier*; L. Vincent has four considerable volumes on *Georges Sand et le Berry*; Marie Louise Pailleron, *François Buloz* (editor of the *Revue des Deux Mondes* at the time of Romanticism) *et ses amis*; A. Poizat, *Le Symbolisme, de Baudelaire à Claudel*; E. Raynaud, *La Mêlée Symboliste*; Gohin, *Œuvre de Samain*; J. de Suberville, *Le Théâtre de Rostand*; Pierre Gilbert, *Forêt de Cippes*, posthumous volume of criticism. He died in the war—was awarded the Prix de Critique by the Academy).

Literary discussions were plentiful. The most important was started by Lierre Louys, who suggests that the best in Molière's theatre belongs to Corneille (first article, in *Le Temps*, Oct. 16; book to be published by Fontemoing). The connection between the "livre cher" and the future of literature was much discussed, young authors being practically barred from the market. *La Nouvelle revue française* was started again, some hailing the manifesto of the editor Jacques Rivière as a masterpiece, some much disappointed in the programme of those who claim to represent the élite of the young intellectuals. *La Minerve* is a new periodical started by men already famous the world over; and there is a long list of new periodicals, many very promising: as *La France Nouvelle*, or *Le Progrès Civique*; of more directly in the literary line *Le Carnet Critique*.

The Grand Prix de Littérature went to the Brothers Tharaud; the Grand Prix du Roman went to Ch. Géniaux; the Prix Goncourt to Marcel Proust; that of *La Vie Heureuse*, to Roland Dorgelés. Quite a number of anniversaries were commemorated, especially the hundredth of the *Méditations* of Lamartine, and the fiftieth of Sainte-Beuve's death (which bring his works within the domain of public property). The following deaths are lamented: Demolder, the Belgian author of *Les Patins de la Reine de Hollande*; L. Tailhade; Ch. Morice; André Mithouard. The French Académie received Barthou, Fr. de Curel Boylesve, Jules Cambon, and elected Henri Bordeaux. The Goncourt Academy replaced Paul Margueritte by Emile Bergerat.

FRENCH SOMALI COAST. (SOMALI COAST PROTECTORATE.) French colony lying between the Italian colony of Eritrea and British Somali-

land, on the Gulf of Aden. Area, about 5700 square miles, and the population was estimated in 1917 at about 206,000. Djibouti had (1917) 13,608 inhabitants, of whom 294 are European, the main port and seat of government being Djibouti. The local budget for 1918 balanced at 1,759,539 francs. The salt mines, opened in 1912 exported, in 1917, 11,962 metric tons of salt. The chief imports were cotton goods, butter, sugar, and galvanized iron, and the chief exports were coffee, ivory, hides, and skins. The total imports in 1917 amounted to 39,416,120 francs, and the total exports, to 50,324,846 francs. In 1917 272 merchant vessels, of 643,290 tons, entered. The colony is administered by a governor, assisted by an administrative council.

FRENCH WEST AFRICA. A possession of France in western Africa, composed of the following territories: Senegal, population in 1917, 1,247,979; Guinea, 1,812,579; Ivory Coast, 1,529,251; Dahomey, 911,749; Upper Senegal and Niger (Sudan), 5,598,973; Military Territory of the Niger, 850,094; Mauritania, 256,164; making a total of 12,206,889, of which the non-African races number 8020, French and foreign 894, making a total of 8914 for the non-African races. Of the African races the French number 12,191,413, and the foreign 6562, making a total for the African races of 12,197,975. The area in square miles is 1,745,000. A governor general, assisted by a council, supervises all of French West Africa from the seat of government at Dakar. Each of the colonies is under a lieutenant-governor, whose local authority is subject to the general direction of the governor general. The imports for 1917 were £7,024,336, and the exports £7,170,255. In 1916, 1825 vessels, of 5,119,558 tons, entered the ports of the colony. At the same time there were 263 post offices. The use of French weights and measures and money is compulsory throughout French West Africa. The governor general at the beginning of 1919 was M. Angoulvant (appointed Jan. 22, 1918).

Senegal is the oldest and most important French colony in west Africa, lying to the north of the British colony of Gambia, and its capital, St. Louis. Its representation in the French Parliament is one deputy.

French Guinea lies between Portuguese Guinea and the British colony of Sierra Leone. Capital, Konakry.

French Ivory Coast, capital Bingerville, lies between Liberia and the British Gold Coast.

Grand Bassam, Assinie, Grand Lahou, Sassandra, Tabou, Thiejean, Bouaké, Aboisso, and other points in the interior are the chief centres of population and trade.

Dahomey, extending from Togoland, on the west to Lagos and Nigeria on the east, and to French military territories in the north, has about 95 miles of coastline. Capital, Porto Novo, with a population of about 20,000.

Upper Senegal, and Niger Colonies lie to the south of the Algerian sphere. Capital, Bamako. Population, 8734.

Mauritania was made a protectorate in 1903 and a special civilian territory in 1904. It comprises the districts of Brakna, Trarza, Gorgol, Assaba, Tichit, Levrier Bay, Adrar, and Tagant.

Imports and exports in 1918 according to British authorities were as follows, in pounds sterling: Senegal, imports, 11,417,026; exports, 8,307,470; French Guinea, 888,957 and 494,953;

Ivory Coast, 609,401 and 507,936; Dahomey, 1,133,077 and 1,199,473. For Upper Senegal and the Niger the imports and exports in 1917 were respectively 190,250 and 112,364.

FRICK, HENRY CLAY. American capitalist and manufacturer, died in New York December 2d. His death was sudden, and was attributed by his physicians to ptomaine poisoning. He was born in Overton, Pa., Dec. 19, 1849, and began work at an early age as clerk in the office of his grandfather, a flour merchant and distiller, but early interested himself in the coke business. In 1871 he organized the firm of Frick and Company with large holdings of coal lands, and coke ovens in the Connelsville region. During the panic of 1873 he purchased additional tracts and ovens and drew the interest of several leading financiers to his project. The Carnegies invested in the Frick Company, and in 1882 Mr. Frick was admitted as a member of their firm in return for giving them further interest in his business. From this time dated his career as a steel manufacturer. By 1889 he controlled coal lands and ovens representing two-thirds of the capacity of the Connelsville region. The Homestead strike of 1892 brought him into prominence. On July 22, 1892, an attempt was made on his life by the anarchist, Alexander Berkman, and Mr. Frick was severely wounded. His assailant was afterwards sentenced to the penitentiary for 21 years. In spite of his wounds Mr. Frick directed the measures against the strike, which finally subsided. He was chairman of the Board of Carnegie Company 1889-92 and afterwards chairman of the Board of Managers of the Carnegie Steel Company. Meanwhile he had become director of several other important corporations. In 1897 he became chairman of the Board of Directors of the H. C. Frick Coke Company, which was the largest institution of the kind in the world. In the Carnegie Steel Company he pursued a vigorous policy which brought in millions of dollars and greatly extended the field of operations. He built a railroad to unite the scattered plants, and saved enormous sums in freight to the company; and he subsequently took over the great Mesaba ore fields of Lake Superior. His subsequent attempt to buy out the Carnegie Company was unsuccessful. Mr. Carnegie then tried to exclude Mr. Frick from the business, and a complicated law suit followed, but the case was settled out of court by the reorganization of the Carnegie Company. It made Mr. Frick one of the wealthiest men in the country and his fortune was doubled soon afterwards as the result of the changes which Mr. Carnegie with the aid of Mr. Charles M. Schwab brought about when they secured the Morgan interest for the financing of the United States Steel Corporation in 1901. Mr. Frick's differences with Mr. Carnegie were never settled and the rivalry between them was the subject of much comment in the press. At his costly residence in New York City on the site of the old Lenox Library he placed a collection of pictures which was believed to be the largest private gallery in the world. He left according to the report of one of his executors nearly \$143,000,000 of which \$25,000,000 was left to his wife, son, and daughter, and the rest to public and philanthropic objects. The art gallery to be known as the Frick Collection, consisting of the Frick residence in New York and its contents and valued at \$50,000,000 was left to the

public, with an endowment fund of \$15,000,000 for its maintenance. The sum of \$6,500,000 was left to his daughter for expenditure in educational or charitable work; \$15,000,000 was left to Princeton University, \$5,000,000 to Harvard University, \$500,000 each to 15 other institutions, and \$2,000,000 to the city of Pittsburgh for a park.

FRIENDS, RELIGIOUS SOCIETY OF. There are four branches of this denomination: Society of Friends (Orthodox) with about 100,000 communicants; Society of Friends (Hicksite) with about 20,000 communicants; Orthodox Conservative Friends (Wilburite) with about 4000 communicants; and Friends (Primitive) with about 100 communicants. The Society of Friends (Orthodox) is the largest and most active. There is a Five Years' Meeting, quinquennial, composed of delegates from 12 of the 14 yearly meetings in the United States and one in Canada. The next meeting will be in Richmond, Ind., in 1922. Foreign and domestic missionary work is carried on by special boards. The denomination supports nine universities and colleges, among which Haverford College, at Haverford, Pa., is the best known. The *American Friend*, published in Richmond, Ind., is the official organ of the society.

During 1919 the Friends in both the United States and England combined for the purpose of doing relief work in France, under the head of the American Friends' Overseas Service Committee headed by Wm. T. Smith of Brooklyn. The Committee has sent a total of 650 workers to France, having raised an aggregate of more than \$2,000,000 for this work. These workers have taken the entire charge of reconstructing the area of devastated country between Verdun and the Argonne Forest, including the villages in the Forest itself. This is an area of something over 400 square miles and includes about 50 villages. Extensive reconstruction work in the area north of Chateau Thierry was also carried on. A small unit of 15 workers was sent to Servia to begin a piece of reconstruction work in agriculture and house building, and in the spring of 1920 the Committee plans to expand this work.

FRUIT GROWING. See HORTICULTURE.

FUEL. See CHEMISTRY, INDUSTRIAL.

FURS. See ALASKA.

GALICIA. Formerly an Austrian province in the Austro-Hungarian Monarchy; bounded on the north by Poland, on the east by the Government of Podolia in the former Russian Empire, on the northeast by Volhynia (in Russia); in the south it touches Bessarabia, and in the southeast it is separated from Hungary by the Carpathians. Population, Austrian census of 1910, 8,025,675. No later statistics are available than those given in preceding YEAR BOOKS. After the armistice and during 1919, its status was indeterminate, being one of the problems before the Peace Conference, on account of the claims of Poland to Eastern Galicia. A proposal under discussion at the close of the year was the formation of two self-governing states out of Eastern Galicia beyond the frontiers of Poland but under a Polish protectorate. See WAR OF THE NATIONS.

GALVESTON FLOOD. See the article HURRICANES.

GAMBIA. A colony and protectorate of British West Africa, on the River Gambia. The

colony proper has an area of 4 square miles and a population of 8000; the protectorate an area of 4500 square miles and a population of about 200,000. Capital, Bathurst on the island of Saint Mary. Imports of merchandise in 1918, \$4,473,927, exceeding those of 1917 by \$1,088,077. Great Britain supplied over 73 per cent. Exports of merchandise in 1918, \$4,296,143, a decrease of \$340,698 from 1917. Great Britain took nearly 95 per cent. There was a notable increase in the trade with the United States which supplied 15.43 per cent of the imports in 1918, as against 7.24 per cent in 1917. This seems to have been due largely to the shortage of foodstuffs in Europe. Revenue in 1917, £117,977; expenditure, £94,519. Governor at the beginning of 1919, Sir Edward John Cameron.

GARBAGE AND REFUSE DISPOSAL. Garbage utilization by feeding to hogs has been increasing rapidly ever since the war began to stimulate food conservation. Most of the garbage feeding has been done by contractors who adopted this means of disposal because it promised a quick turn over of capital at a good profit on account of the short time required to fatten hogs and their high market price. Relatively few cities have established feeding plants but many have encouraged contractors to do so, since it promised the cities more favorable contracts than any other method of disposal and at the same time contributed to waste utilization and food production. Although garbage reduction plants, by recovering grease and fertilizer base, are also a means of garbage utilization, not a single new one was reported as having been built in 1919, while a number of cities changed from reduction to hog feeding. Likewise, garbage incinerating plants had few additions during the year, and none of size, while many existing furnaces stood idle, most of these having been previously shut down. The swing to hog feeding promises to continue for at least a few years longer, after which reduction may regain at least some of its lost ground. This depends upon the prices of labor, material, and capital, all of which bulk much larger in reduction than in hog feeding plants.

Large cities that changed from reduction to hog feeding in 1919 are Baltimore, Newark, Buffalo, and St. Louis, the first three of which made contracts which base the price they are to receive for their garbage on the market price for fat or killing hogs at Chicago. Utica, N. Y., and Akron, Ohio, also changed from reduction to feeding. At Minneapolis, St. Paul, and many smaller cities hog feeding was continued. At New York City the largest garbage reduction plant in the world stood idle, and the garbage from the major part of the city was dumped at sea, while one proposition after another for some means of disposal was discussed by the authorities. A variety of conditions more or less peculiar to New York contributed to the situation there, which includes not only the idle reduction plant named but also another one, built by an earlier contractor under one of the short-term garbage disposal contracts that have been so baneful. In passing, it may be noted that under the new city charter for Philadelphia, effective in 1920, that city is empowered to let garbage-disposal contracts for a longer time than one year, and is required to collect its garbage and clean its streets by its own forces unless a

majority of the new city council and the mayor vote that the work be done by contract.

HOG FEEDING CONTRACTS. The vicissitudes of garbage disposal in American cities are illustrated by the experiences of *Baltimore* which, finally guided by one of its municipal engineers, let a contract for disposal by feeding, effective May 1, 1919, which was expected to net the city \$16,500 annually, with no allowance for collection, but after deducting the cost of barging the garbage from central stations to the hog feeding plant. From 1882 to 1901 *Baltimore* garbage was barged to a point 6 miles from the city by a contract and spread on farm land as a fertilizer. From 1902 to Jan. 1, 1908, a contractor collected the garbage, hauled it to the water front in the heart of the city and treated it by reduction, at a yearly total price of \$147,300. Owing to complaints of non-collection and of odors from the disposal plant, the city bought the collection equipment and reduction works for \$372,888 in 1908, assumed the collection of garbage, but let a contract for disposal at \$85,000 a year, less \$10,000 a year for the use of the reduction works. This continued until the close of 1917, when the disposal contract was renewed, except that no allowance was made to the city for the use of the disposal plant. During 1919, three attempts to let a new contract for disposal only were made before success was attained. The first bid was from a contractor who offered the city 35 cents a ton for the garbage but was barred by the Capital Issues Committee from building a proposed reduction plant. Next, alternative bids for reduction and feeding were invited but none for either method were submitted, although under reduction the city offered its own plant for remodeling and use until a permanent reduction plant could be built. After the armistice, the city again advertised for alternative bids for reduction and hog feeding, offering to deliver the garbage to the disposal plant in either case. For reduction, bids were asked on a base price of 8 cents a pound for grease, the price to go down or up with the market price. No bids for reduction were received. A contract for feeding was let, the price per ton of garbage to be $3\frac{1}{2}$ times the average monthly top price per pound of live killing hogs on the Chicago market. Including a large recently annexed district, the area of *Baltimore* is 80.5 square miles and the population is estimated at 720,000. From the 670,000 population of 1918 there were collected 51,324 tons of garbage. During the same year 16,464 dead animals were also collected. The hog feeding contract at *Buffalo* also followed a long period of disposal by reduction under various contracts and was not awarded until after a long series of negotiation. The price per ton is 6, 7, or 8 times the price of live killing hogs at Chicago, depending upon the quantity of garbage, but a minimum of 50 cents a ton is fixed. At *Newark*, a reduction contract was terminated by the contractor in 1916, on the ground that the city did not enforce the contract requirement that householders must exclude miscellaneous refuse from their garbage cans. Municipal collection has since been the practice, the garbage and other refuse being mixed, until a new separation ordinance was put in force in 1919. The mixed refuse was dumped on meadow land owned by the city, a contractor paying \$3000 a year for the privilege of salvage at the dumps,

besides keeping the dumps in good condition. *Newark* delivers its garbage to the new feeding plant built by the contractor on the Passaic River, and for each ton receives eight times the Chicago selling price for live killing hogs—the highest price paid by three cities which have contracted for garbage disposal on this price basis, which has been characterized as “taking the gamble out of garbage,” in contrast with the old flat rate prices which might prove to be unfair to either the contractor or the city. Sheep as well as hogs utilize the garbage of *Utica*, N. Y. When the disposal contract there expired, on April 1st, the reduction contractor raised his price from \$5100 to \$8000 a year for disposal. A rival contractor offered to take the garbage collected by the city for a payment to him of \$3100. He has a farm of 160 acres, and feeds the garbage to 1600 pigs and 200 sheep. This contractor breeds his own pigs. Some other contractors do this and still others consider it more advantageous to buy young pigs. *Akron, Ohio*, which changed to feeding in 1919, is one of the small number of cities which have ventured to build a municipal reduction plant, which was put in use early in 1916. After operating it for a few months, the city leased it to a company, at a yearly rental of \$8200 (valuation, \$116,000). At the same time the city contracted for garbage collection for five years, at \$3.12 a ton. The reduction company enlarged the plant from 15 to 45 tons' capacity. In 1918, reports of the two companies showed, there was a loss of about \$5000 on collection and a profit of about \$1000 on disposal, making a net loss to the dual company of about \$4000 a year on the collection and disposal of 10,142 tons of garbage. The city felt that the collection service had been poor and there was said to be nuisance in the operation of the disposal plant, although this was attributed to the character of the plant and not to its operation. In January, 1919, the disposal company notified the city that because the city had failed to pave the approach to the plant (really due to inhibition by the Capital Issues Committee) it would terminate the contract on March 1st and shut down the reduction works. The city paid for improvements to the plant and bought out the collection equipment. In April the reduction works were damaged by an explosion, so a marketable product could not be turned out. Estimates for an improved and larger plant on a new site showed a probable first cost of \$472,000 and a new annual charge of \$34,700. It was decided to secure bids for disposal by feeding and toward the end of the year a five-year feeding contract was let, under which the city will receive 85 cents a ton for the bulk of its garbage delivered to a reloading station. At *Lansing, Mich.*, municipal garbage feeding plant has been in existence since late in 1917, when a citizen's committee having demonstrated the success of the plant turned it over to the city. About 4000 hogs were being fed in 1919.

LEGAL DECISION. A mooted point in garbage collection and disposal is whether a city can prohibit private collections. The Massachusetts State Supreme Court (123 N. E., 684) decided that a *Boston* ordinance prohibiting such collection was in the interest of public health and a valid exercise of the police power. The courts of other States have ruled some one way and some another, the negative rulings being sometimes based on the allegation that garbage is

private property and that a city can go no further than require it to be collected and disposed of in a sanitary manner. The question is of importance where either a city or a contractor is treating the garbage by reduction or is feeding it to hogs, in which case the largest possible volume of garbage is desired, particularly the rich garbage from hotels and restaurants.

GARDENING. See **HORTICULTURE.**

GARDENS, WAR. See **AGRICULTURAL EXTENSION WORK.**

GARDINER, COLONEL ASA BIRD. Lawyer and military officer, died at Suffern, N. Y., May 28. He was born in New York City, Sept. 30, 1839, and graduated at the College of City of New York in 1859. He served with distinction in the Civil War and in 1872 the Congressional Medal of Honor was awarded to him for gallantry and distinguished conduct during the Gettysburg campaign. In 1873 he was made major and judge advocate in the regular army. He retired in 1888. During his military service he discharged among other duties those of professor of law at West Point, and acting Assistant-Secretary of War (1887-88). He was district attorney for New York County, 1897-1900, and was a conspicuous figure in State affairs. He was counsel in a large number of important cases including those of General Grant and General Sheridan in the Warren Court of Inquiry and criminal cases affecting the army and navy. He was prominent in Tammany Hall and a leading figure in Democratic politics. Among his writings may be mentioned the following: *The Writ of Habeas Corpus as Affecting the Army and Navy* (1874); *Practice and Proceedings of Courts-Martial* (1878); *The Rhode Island Continental Line of the Revolution* (1885); *The Order of the Cincinnati in France* (1905).

GARRIGAN, PHILIP JOSEPH. Roman Catholic bishop of the Diocese of Sioux City, Iowa, died at Sioux City, October 14. He was born in Ireland about 1840, and after coming to the United States in his youth was educated in the public schools of Massachusetts, and at Saint Charles College, Maryland; subsequently studied at Saint Joseph's Provincial Seminary then at Troy, N. Y., and on June 11, 1870, was ordained priest. He was director of the Troy Seminary, 1872-75, pastor in Fitchburg, 1875-88, then served on the staff of the Catholic University at Washington till 1902, when he was made bishop of Sioux City.

GASOLINE. See **AUTOMOBILES.**

GAUL, GILBERT WILLIAM. American painter, died in New York City, December 21. He was born in Jersey City, N. J., March 31, 1850, and studied art under John G. Brown and L. E. Wilmarth, 1872-76. His specialty was in historic and genre paintings and he won many medals for his work, including those of the Paris Exposition in 1889, and the Chicago and Buffalo expositions.

GEMS AND PRECIOUS STONES. The value of precious stones produced in the United States showed a steady decrease over the period from 1916 to 1918. There was a decrease from \$217,793 in 1916 to \$131,012 in 1917; the figure for 1918 was given at \$106,523. The precious stones having the most value in 1918 were: Corundum, \$42,414; turquoise, \$20,667; quartz, \$15,211; opal, \$6304; tourmaline, \$6206. The total value of diamonds and other precious stones imported into the United States in 1918 was

\$22,666,839, excluding pearls, which had a value of \$765,929. Unset diamonds to the value of \$7,734,150 were imported in 1918,—a marked decrease from the value of \$18,421,838 in 1917. No domestic exports of gems or precious stones were recorded for 1918. Foreign precious stones reexported from the United States in 1918, with pearls reckoned in, showed a value of \$43,121.

GENUNG, JOHN FRANKLIN. Professor emeritus of Amherst College, died at Amherst, Mass., on October 1st. He had been a member of the faculty of the college for 37 years, and was widely known as the author of text books on rhetoric and of essays. He was born in Willseyville, N. Y., Jan. 27, 1850; graduated at Union College in 1870, and after teaching for two years studied at Rochester Theological Seminary, where he graduated in 1875. He officiated for three years as a pastor in the Baptist church, then went to Germany where he studied in the University of Liepzig, pursuing courses in English and Hebrew. He entered the Amherst faculty in 1882, became professor of rhetoric and English literature in 1889, and of literature and Biblical interpretation in 1906. A few years before his death he had retired from active work. As a teacher he was admired for his inspiring interpretations of literature, especially of poetry. His earliest work as a student in Germany had been in this field, and the best known of his published writings dealt with it. They include: *The Epic of the Inner Life, Being the Book of Job*; *What a Carpenter Did With His Bible*; *Practical Elements of Rhetoric*; *Tennyson's "In Memoriam," Its Purpose and Structure*; *The Passing Self*; *The Hebrew Literature of Wisdom in the Light of To-day*; *The Idylls of the Ages*; *The Select Essays of Elia*; *Words of Koheleth*; and a manual of *Biblical Literature* (1919), published shortly before his death. His work on rhetoric became a standard in American education. Besides the books above mentioned, he published many articles and essays, and was the editor of the *Amherst Graduate Quarterly*.

GEOGRAPHICAL SOCIETY, AMERICAN. A society organized in 1862 for the furtherance of geographical research. From November, 1917, to December, 1918, the Society was the headquarters of the body of experts known as the Inquiry, which later attended the Peace Conference and served on the various territorial and economic commissions. The maps that were made by the Society for the Peace Conference were also used in most of the colleges of the country at which the Students' Army Training Corps had been established. In 1919 the Society conducted an economic survey of the boundary between Guatemala and Honduras under the auspices of the Department of State, Washington, D. C., and on behalf of the governments of Guatemala and Honduras who desired a technical study to be made as the basis for a recommendation by the Secretary of State for a final boundary in the disputed region.

Another feature of interest in 1919 was the awarding of the Cullum Geographical Medal to Emmanuel de Margerie of Paris, France, now Director of the Geological Survey of Alsace-Lorraine, and to Harry Fairfield Osborn, President of the American Museum of Natural History, New York.

The Society publishes two magazines. The *Geographical Review*, a scientific periodical, gives the latest information in the fields of geographi-

cal research and exploration. It also contains a monthly record of geographical events throughout the world and bibliographical section covering the whole field of geographical literature. The second publication is the *Journal of Geography*, the only magazine specifically prepared for the use of teachers of geography. In addition, the Society publishes an atlas of "War Maps," prepared in connection with the work for the Peace Conference as noted above, and an annual monograph, sent free of charge to all Fellows of the Society. The membership included in 1919, nearly 4000 Fellows. The officers for the year were: President, John Greenough; vice-presidents, James B. Ford, Paul Tuckerman; foreign corresponding secretary, Prof. William Libbey; domestic corresponding secretary, Archibald D. Russell; recording secretary, Hamilton Fish Kean; treasurer, Henry Parish. The Society has its headquarters at Broadway and 156th St., New York City, and Dr. Isaiah Bowman is the director.

GEOGRAPHIC SOCIETY, NATIONAL. A national scientific organization, with headquarters in Washington, D. C., founded in 1888 for the increase and diffusion of geographic knowledge, especially through its organ, the *National Geographic Magazine*. Its principal scientific undertaking of the year was a sixth expedition to the Valley of the Ten Thousand Smokes region of Alaska, under the leadership of Dr. Robert F. Griggs, the leader of the Society's previous expeditions to that region, and the discoverer of the remarkable valley. Fumaroles so hot that their gases ignited wood were found; a previously unexplored arm of the valley was investigated; a hundred miles of uncharted or erroneously mapped coast line was surveyed and charted, and a new harbor was found, together with a better, shorter, and safer route into this part of Alaska. A collection of incrustations, gases, and lavas was brought back for laboratory study, and the processes of reforestation of an ash-devastated country were investigated further, with many striking lessons for the botanist. A sportsman's paradise of great natural beauty and flowing with game, was discovered in the region immediately north of the Valley of the Ten Thousand Smokes. In his report on the expedition, Dr. Griggs says that by the analysis of the material brought back, it is hoped that new light may be thrown upon the composition and condition of the materials of the earth's interior. Among the outstanding issues of the *Magazine* during the year was a full number devoted to the dogs of the world by Ernest Harold Baynes, illustrated with 73 color pictures by Louis Agassiz Fuertes; also a number devoted to the history and illustration in color of American military insignia, past and present. The membership of the Society is now approximately 700,000, making it numerically the strongest scientific society in the world. Its Director and Editor is Gilbert Grosvenor.

GEOLOGICAL SURVEY, U. S. See ENGINEERING.

GEOLOGY. At the Baltimore meeting of the Geological Society of America, discussion centred largely about the practical phases of the science, its bearings upon industry and its various technical applications. These have been set forth in previous reviews for the YEAR BOOK, so that they hardly need to be referred to more particularly at this time. The discussion, however, served to

indicate very clearly the trend of recent work toward increasing contact with the economic field. The address by Whitman Gross, the retiring president of the society, gave a survey of the developments during the war, which more than anything else within the last few years encouraged specialization in the fields of applied geology. The outcome has been a wider appreciation of the value of scientific work in the public service, but at the same time some apprehension may be felt lest the emphasis thus given to practical studies should diminish the interest for general research upon which scientific progress really depends.

MAP OF BRAZIL. In the field of regional geology no more notable contribution has been made in many years than the map of Brazil, with its accompanying description and bibliography, the work of J. C. Branner (*Bulletin Geol. Soc. Am.*). The magnitude of the task involved in the preparation of a geological map covering a country so extensive and varied in physical features as Brazil will be readily appreciated by fellow scientists, and for others it may be said that the author gave more or less of his time to the work for 45 years. Considerable areas within the map limits still remain to be explored, but the broader features in regard to the nature and succession of formations have been indicated with a degree of fullness that was hardly to be expected in view of the rather meagre resources available for geological exploration in that vast country. The scale of the map is 1 to 5,000,000, or approximately 80 miles to the inch.

GLACIAL GEOLOGY. The absence of any evidences of extensive glaciation in the mountains of Southern British Columbia was noted by J. B. Tyrell (*Jour. Geol.*), thus revising the conclusions of some of the earlier geologists who probably had less experience in this field. It would appear that no continental ice-sheet invaded the Cordilleran region as far south as latitude 53° or 54°. Local mountain glaciers were in existence during the Pleistocene and they were competent to produce all the observed effects of erosion and morainal accumulations. The conditions in Northern British Columbia have not been sufficiently examined to determine whether the ice-sheet spread over that area.

The influence of winds in their relation to the distribution of land and water deserves consideration as a factor in producing glacial climate, according to R. M. Deeley (*Geol. Mag.*). The present arrangement of the continents makes for a poleward flow of the air from the temperate zones, thus moderating the temperatures in the arctic zone. If the polar regions in Pleistocene times had been land, the cyclonic currents would have been reduced in strength and their equalizing tendency diminished; this would have extended the limits of arctic climate, superinducing as well the accumulation of an ice-cap that advanced southward with the lowering of temperatures. The periodic alterations of climate, which are not considered to have characterized the Pleistocene period, may be accounted for by variations in strength of the cyclones in response to changes. The theory has some merit apparently, even if its statement fails to meet all the difficulties presented by the problem.

CONDITION OF THE EARTH'S INTERIOR. In a summary of the more recent investigations of the conditions existing in the depths of the earth,

R. D. Oldham (*Geol. Mag.*) found the weight of evidence to indicate that three distinct regions occur, each characterized by different physical relations: (1) An outer crust of solid rocks, relatively thin, probably representing not more than one-two hundredth part of the radius; (2) a shell about one-half to three-fifth of the radius, consisting of material that is neither solid nor fluid in the ordinary usage of the words, since it is rigid under stresses of short duration but capable of indefinite yielding to stresses of small amount extended over long time periods; (3) a central nucleus of matter that has little or no rigidity even against stresses of short duration. The condition of the nucleus may be described as fluid, though whether essentially liquid or gaseous need not be argued. From the standpoint of its component materials the earth may be described as an envelope of stony materials surrounding a core that is principally metallic, largely iron, which core represents from three-fourths to four-fifths of the entire radius. Crustal movements indicated by mountain folds and great faults that have been held to represent adjustments of the outer shell to a cooling shrinking core may not be so explained. They are too irregular in distribution to accord with this principle, furthermore they involve too large quantities for such forces. No adequate course has been found as yet to account for them, but it is recognized that adjustments are facilitated by the abrupt change from the solid rock crust and the incompetent zone below. The temperatures reached in the earth's interior are a matter of speculation. It would appear, however, that the gradient of 1° to 25 meters observed in the superficial zone is no more than would be expected from the radium content of rocks. That the innermost regions may be cold, approaching the absolute zero temperature of space, is not an impossible condition.

MOUNTAIN BUILDING. The mechanical features of mountain folding was described by R. T. Chamberlin (*Jour. Geol.*) on the basis of recent exploration in the Colorado Rockies. An estimate of the crustal shortening over a distance of 140 miles across the axis of the main uplift showed the total amount to be 8 miles. The original uplift was probably about 13,000 feet on the average above the datum plane, taken at 1500 feet above sea level. On the basis of these results, the depth to which the strata were affected by the squeezing can be found by dividing the product of the length of the section into the uplift by the amount of shortening that resulted. The calculated depth of disturbance was found to vary in different parts of the section from a minimum of 13 miles to a maximum of 107 miles, the greatest depths being below the granite ranges. Compared with the Appalachians the Rocky Mountains have undergone less plication, but more vertical lifting with a thicker shell involved in the movement. Moderate folding of a thick zone would seem to accomplish the same vertical bulging as more violent convolution of a thin shell. Volcanic activity prevailed to a greater degree in the Rocky Mountain disturbance than during the Appalachian upheaval, perhaps owing to the deeper zone involved.

The development of the coast and Sierra Nevada ranges of California, according to Bailey Willis (*Bulletin Geol. Soc. Am.*), may be ascribed to compression that has brought about

rotation of the mountain blocks along high-angle faults. This method of uplift is indicated by the existence of consequent streams on the old surface and by normal faults following directions along which tilting causes a downslip of the blocks. The upward movement took place along a high-angle thrust that curves downward to a low angle below the block and extends seaward many miles. The cause of rotation was stress set up by erosion and sedimentation, a stress insufficient to produce mass movements in the sub-crustal region, such as are involved in isostatic adjustment, but inducing crystal orientation and foliation of the rocks. This orientation varies from horizontal under loaded areas to vertical in areas lightened by erosion, forming a curve that rises from great depths below the ocean to the continental border zone. The planes of foliation mark directions of weakened cohesion along which slipping may occur without involving such stress as would be demanded by mass movement.

IGNEOUS ROCKS. The process of crystallization of igneous magmas was discussed by N. L. Bowen (*Jour. Geol.*) with reference to the production of variations in the resulting rocks, or as it is termed igneous differentiation. The agency of crystallization, an inherent force resident in magmas, appears to be more effective in causing variations than other possible causes like convection currents, liquid immiscibility or melting of foreign materials. There are two stages or the crystallizing process, an early stage when crystal settling takes place and a later stage when a separation of the crystal mass and the residual liquid occurs as result of the squeezing out of the latter by pressure. The one or the other operation, or their combined agency, serves to explain the effects of a cleavage or differentiation of the magma.

OÖLITIC STRUCTURE. The origin of oölitic and spherulites may be explained according to W. H. Bucher (*Jour. Geol.*) on the basis of Schade's discoveries of the method of formation of urinary calculi. Oölitic and spherulitic structures are assured when a substance passes from the state of a colloidal emulsion to a solid; if the suspended substance be pure a crystalline radial arrangement results and if impure a concentric one. The spherical shape arises from the tendency of the droplets that form in the process of separation to coalesce, whereas the difference between radial and concentric methods of aggregation depends upon the amount of impurities thrown out with the growing particles.

ROCK ANALYSIS. A method for the rapid estimation of mineral percentages in rocks was described by A. Johannsen (*Jour. Geol.*). It is based on the employment of the camera lucida in combination with the microscope. A projection of the field seen in the microscope is obtained on a drawing board where the boundaries of the mineral particles are traced by a planimeter, thus recording the area occupied by each substance. The equivalent volumes are then obtained as they have the same ratios as the areas in any uniform rocks. The volumes can be reduced to weight percentages by dividing the products of the respective specific gravities and individual volumes by the total weight.

OIL GEOLOGY. The derivation of petroleum was ascribed by A. G. McCoy (*Jour. Geol.*) to the solid organic matter (kerogen) of shales. Black bituminous shales, essentially the same as

the oil shales of Colorado, Wyoming, and Utah, accompany the oil pools of the Middle West. The oil is driven off by pressure rather than by heat, at a depth corresponding to rock pressures of 5000 or 6000 pounds to the square inch. After the oil once forms it is collected in porous rocks, usually sandstones, by water moving under capillary forces which invades the shales and displaces the oil. The existence of cross-fractures and faults is necessary to admit the water to the deep zones, which accords with the observation that the oil collects on the sides and flanks of anticlines, where the rocks are most likely to have been ruptured.

M. L. Fuller (*Econ. Geol.*) called attention to the relation existing between oil distribution and the fixed carbon ratio of coals, confirming the vein of David White that no oil or gas of commercial value may be looked for in strata that contain coals of a high fixed carbon content. The limiting ratio is about 70 per cent. In the Texas field 60 per cent may be regarded as the practical limit. The boundary between the productive and barren area of that State runs from the Red River in Montague County south and west parallel with the margin of the Cretaceous strata to McCulloch County south of the Colorado River. Oil in varying quantities, though absent to the east of this line, should be encountered at shallow depths to the west between the 60 and 55 per cent curves and farther west between the 55 and 50 per cent curves at greater depths. A region of abnormal disturbance is to be inferred from the high fixed carbon ratio in the Cretaceous area, perhaps a buried Paleozoic land mass.

The remarkable oil developments in Central Texas were described by W. G. Mattison (*Econ. Geol.*). The principal producing strata belong to the Bend series of Mississippian age and in nearly all fields the position of the oil pools bears a close relation to the surface structure. The most favorable conditions for the occurrence of oil in quantity are presented by cross-folds superimposed on the flexures that resulted from the uplift which produced the Bend arch, the direction of the two systems of folding being nearly at right angles. Besides structural relations the condition of the sands has to be taken into account in locating pools, for if the sands are thin or of compact nature dry holes result even with favorable structure. The flow of oil so far has not been attended by salt water, which feature is favorable to a long life for the pools.

SALT RESOURCES. A report on the salt deposits of the United States by W. C. Phalen (*Bulletin U. S. Geol. Surv.*) added much to previous knowledge about these important resources. The investigation was undertaken primarily with the view to testing the brines and rock salt for potash, but this apparently does not accompany the beds to any extent, except in one or two of the dry lakes of the Great Basin. There are no occurrences of potassium compounds so far discovered that compare with those of Prussia and Alsace which previous to the war practically supplied the world's requirements of these indispensable materials. The resources of salt, however, are ample and well distributed over the country, no less than 15 states possessing workable deposits of rock salt, with natural brines occurring in several others.

ORIGIN OF ORES. The principles governing the formation of ore deposits were discussed in a number of papers, mainly collected in the issues of *Economic Geology*. B. S. Butler gave examples of the relation of ore distribution to faulting from the Wasatch district of Utah, where some of the more important deposits occur in the brecciated zones produced by thrust faults. The intersection of such zones by vertical fissures especially afford a favorable environment for ores; the deposits result from the replacement of the breccia by mineralizing solutions that circulate along the fissures. Taconite—the ore bearing rock on the Mesabi range—owes its origin to precipitation in shallow waters, probably influenced by organic processes, according to Frank F. Grout. The accumulation was subjected to alternating periods of solution and oxidation, thereby giving rise to conglomerates and granular rocks much higher in iron than the primary material. Recrystallization later occurred under the stimulus of heat and pressure superinduced by deep burial of the beds. Gold ores deposited by igneous agency were described by H. C. Cooke from the Matachewan district, Ontario. The ores are restricted in distribution to the contact zone of granite porphyry, the intrusion of which was accompanied by pegmatite as the last differentiation product. The crystallization of the pegmatite minerals left magmatic solutions rich in lime, iron, sulphur potash and gold, which by reaction with the wall rocks formed replacement deposits of calcite and gold. The action of deep-seated igneous rocks was concerned in the formation of the Missouri barite deposits, according to W. A. Tarr, who reviewed the conditions surrounding the occurrence of barium and pointed out its general association with igneous materials as the primary environment. The limestones in which the barite is now found contain very little barium, too small a quantity to have yielded the supply represented by the deposits; they have also little permeability for solutions except along joint planes, so that circulations of surface waters would hardly have been efficient mineralizers, especially as they have low solvent effect upon barium salts. W. J. Miller described the occurrence of magnetite in the Lyon Mountain district of the Adirondacks and explained the deposits as concentrations effected by the agency of more mobile portions of a magma that is now represented by the granite country rock. The source of the iron is referred to the magnetite and iron-bearing silicates of an earlier gabbro that was invaded by the granite. For reviews of Volcanology and Seismology, see VOLCANOES and EARTHQUAKES.

GEORGETOWN UNIVERSITY. A Roman Catholic institution for the education of men, at Washington, D. C. There were enrolled in the university in the fall of 1919 2102 students, and the faculty numbered 205. The library contains 100,000 volumes. Georgetown was founded in 1789. President, Rev. John B. Creeden, S.J.

GEORGE WASHINGTON UNIVERSITY. A non-sectarian co-educational institution established in 1821 at Washington, D. C. In the fall of 1919 the enrollment was 3416, and in the summer it was 677. The faculty contained 287 members, 55 being added during the year. Productive funds amounted to \$158,753.22 and the income for the year was \$319,161.67. The

library contained 54,000 volumes. During the year the following gifts were received: \$25,400 from Abram Lisner, Esq.; \$5000 from Col. Robt. M. Thompson; \$1000 from John Hays Hammond. The university also acquired three lots for the extension of its plant. President, William Miller Collier, LL.D.

GEORGIA. POPULATION. The population of the state in 1910 was 2,609,121, and on July 1, 1919 it was estimated to be 2,975,394.

AGRICULTURE. The following table is compiled from a report of the Federal Department of Agriculture.

Crop	Year	Acres	Prod. Bu.	Value
Corn	1919	4,820,000	69,890,000	\$111,824,000
	1918	4,590,000	68,850,000	113,602,000
Oats	1919	540,000	10,800,000	12,420,000
	1918	550,000	11,000,000	13,090,000
Wheat	1919	240,000	2,520,000	6,628,000
	1918	280,000	2,856,000	7,597,000
Hay	1919	557,000	a 618,000	15,509,000
	1918	696,000	a 863,000	20,280,000
Peanuts	1919	202,000	5,050,000	12,423,000
	1918	314,000	8,792,000	14,067,000
Potatoes	1919	23,000	1,610,000	3,494,000
	1918	23,000	1,610,000	2,978,000
Sweet Pota.	1919	142,000	13,064,000	14,370,000
	1918	180,000	11,960,000	14,950,000
Cotton	1919	5,288,000	b 1,780,000	809,670,000
	1918	5,841,000	b 2,122,000	291,831,000
Tobacco	1919	81,000	c 16,430,000	3,582,000
	1918	4,500	c 3,600,000	1,656,000

a Tons. b Bales. c Pounds.

EDUCATION. The school population in 1918 was 840,861; the enrollment was 679,747, and the average attendance was 452,064, with the average length of the school year at 130 days. There were 15,172 teachers, with an average monthly salary for grade schools, ranging from \$70 to \$26; for high schools, from \$109 to \$31. The total fund raised for public schools was \$7,619,267; the grand total raised for educational purposes for colleges, common schools, and secondary work amounted to \$9,904,880.

TRANSPORTATION. The total railway mileage of the State for 1918 was about 7343 of single main track; of this, 14 miles were constructed by two companies in the year.

OFFICERS. Governor, Hugh U. Dorsey; Secretary of State, H. B. Strange; Treasurer, John W. Eagleson; Auditor, E. G. Gallett; Attorney General, Roy L. Black.

See COTTON; AGRICULTURAL EXPERIMENT STATIONS.

GEORGIA. A former province of the Russian empire, now a republic. Its status in its relation to the Bolshevik government is uncertain. Its independence was recognized in January, 1918. From June 1, 1918 to July 1, 1919, the foreign trade was as follows: Imports, 366,897,167 rubles; exports, 257,559,000 rubles. The chief imports were agricultural produce and foodstuffs and the chief exports, tobacco and tobacco products, wine, brandy, and spirits.

GEORGIA, UNIVERSITY OF. A State institution of learning, located at Athens, Ga. In the summer of 1919 there were 1017 students, and in the fall the enrollment was 1131. There were 71 members in the faculty. Income for the year amounted to \$379,168. A new building at a cost of \$60,000 was erected as a women's dormitory. The library contained 43,250 volumes. The institution was founded in 1801. President, David C. Barrow, LL.D.

GEORGIA SCHOOL OF TECHNOLOGY.

A State institution for the technical training of men, at Atlanta, Ga. Enrollment for the fall was 1375; for the summer session, 206; and there were 85 members in the faculty. The income for the year was approximately \$160,000. The library contained 14,000 volumes. During the year a Department for Vocational Training for Rehabilitation Students under direction of the Federal Board was established; also, a Department for Special Training for Detachment of Officers from the Motor Transport Corps. The school was founded in 1888. President, Kenneth Gordon Matheson, LL.D.

GERMAN COLONIES. See WAR OF THE NATIONS.

GERMAN EAST AFRICA. Before the war a German protectorate lying to the south of the British East Africa protectorates and extending from Lakes Victoria Nyanza, Tanganyika and Nyanza to the Indian Ocean. The conquest of the colony by the British troops was completed in 1918 and its final disposition was the subject to the Treaty of Versailles. See WAR OF THE NATIONS.

GERMAN EVANGELICAL SYNOD OF NORTH AMERICA. See EVANGELICAL SYNOD OF NORTH AMERICA.

GERMAN LITERATURE. If the critics of the Allied countries expected German literature after the armistice to strike a note of repentance or even regret for the ignominious part played by Germany in the world war, they must be sorely disappointed. For while the absence of that brazen defiance which characterized the outpourings of German writers during the first two years of the war must be admitted, the general tone is one of self-satisfied consciousness of having showed the world their "might," even if there be at present sorrow and want in many homes of the fatherland. That self-righteousness is so typical of the race that it is likely to prevail. Few and far between are the books that sound a note of warning or exhortation. The much-needed moral renaissance of the new Germany seems to be slow in manifesting itself.

As for the book production as such, it is astonishing that in spite of paper shortage and other economic obstacles it has not perceptibly diminished. However, as a very large number of books bear no date of publication—a detail which German publishers have always meticulously observed—it is safe to presume that the omission of the date is meant to make some books appear as novelties, which have perhaps been on the German market for a year or more.

FICTION. A great number of novels and short stories of recent publication deal with the countries and provinces that occupy a prominent place in the deliberations of those who are reconstructing the map of Europe. Hermann Sudermann, always on the alert which way the wind blows, has capitalized the interest of the reading public in problems of Eastern Europe by writing a volume of *Litthauische Geschichten*, for which there is much demand. Friedrich Lienhard gives us in his *Westmark* a story of Alsace. Fritz Skowronnek's novel, *Das schleichende Gift*, with its sub-title *ein Masurenroman*, is a story of Polish Austria. Otto Soyka, an author who made his debut shortly before the war, has written a novel of Russia, very appropriately entitled *Der entfesselte Mensch*. Nikolaus Bruck's *Ich warte*, is a story of Strass-

burg, Alfred Knoblauch's *Heimat* of East Prussia, Josef Lux's *Das grosse Bauernsterben* of rural Austria, Heinrich Rienow's *Das heilige Erbe* of German Austria, while Mia Munier Wróblowska's *Der graue Baron* is a Lettish story, and Friedrich H. Kraze in *Die von Brock*, deals with Baltic types. Other novels dealing more or less directly with problems of the present are *Töchter der Hekuba* by the gifted, though almost too prolific Clara Viebig, *Die Präsidentin* by Agnes Harden, *Weltrausch*, a story of Austria's decline by Rudolf Lothar, Paul Zifferer's *Das Feuerwerk*, Adelheid von Rothenburg's *Die Nätherin von Stettin* and Diedrich Speckmann's novels with rural setting *Die Heidklausen*, *Heidehof Lohe* and *Der Auerbe*. The productivity of some of the writers of fiction during the stress of war and revolution is truly amazing. Felix Philipp seems to have abandoned drama for fiction and has published two books during the past year: *Hotel Gigantic*, a society story, and *Jugendliebe*, a novel of old Berlin. Fritz Skowronnek, besides the novel mentioned before, has written *Die süsse Not*, *Die Lore auf dem Dach* and other books; Hans von Hoffenthal, *Maria Himmelfahrt* and *Maria Flora*; Olga Wohlbrück *Romantik* and *Der grosse Rachen*; Ida Boy-Ed, the mother of the man who figured prominently in the annals of German intrigue in the United States has two books to her credit: *Die Stimme der Heimat* and *Erschlossene Pforten*; Georg Hermann, perhaps the best interpreter of old Berlin, figures on the title-page of *Heinrich Sohn, Jr.* and *Einen Sommer lang*. Clara Viebig returns in her *Naturgewalten* to the familiar soil of her native Eifel region. Herman Stegemann's *Theresle* suggests the Alsace which made him famous. A number of Austrian writers figure on the title-pages of recent novels, foremost among them Arthur Schnitzler with *Casanova's Heimfahrt*, Hermann Bahr with *Die Rotte Koraks*, Karl Hans Strobl with a story of student life in Prague, *Die Vaclavbude*. Rudolf Hans Bartsch with *Heidentum*, the story of a solitary; the veteran Balduin Groller with *Der Leibeigene*, and Stefan Grossman with *Die Partei*. Historical and romantic stories of the genre in which Felix Dahn excelled are represented in Paul Albrecht's *Ein königlicher Zauderer* and *Arminius Sigurfried*. Kurt Münzer has written a story of old Berlin, *Menschen von gestern*, and Alfred Schirokauer a historical novel of Saxony, *August der Starke*. The faithful Boswell of Wilhelm von Hohenzollern during the war, Karl Rosner, is the author of *Die Beichte des Herrn Moritz von Cleven*. Ludwig Goern deals with an interesting legend in *Die Päpstin Johanna*. Rudolf Stratz's *König und Kärner*, Hanns von Zobeltitz's *Der Alte auf Topper*, Arthur Zapp's *Die Sünde wider das Weib* and Heinrich Steinitzer's *Das schlesische Fräulein* and *Der Mann der geliebt sein wollte* have each an element of popularity, while the name of Gustav Freissner will suffice to secure success to his novel *Die Brüder*. Heinrich Lilienfein, a few years ago considered a promising dramatist, figures on the title-page of the novel *Die feurige Wolke*, Georg Hirschfeld, one of the survivors of the Young Germany of the eighties has written *Die Hände der Thea Styriner*, and Rudolf Presber, whose name is associated with lyrics and drama, is the author of *Mein Bruder Benjamin* and *Hans Thomas Al-*

taich, a Bavarian story. Motives of mysticism are struck in Werner Scheff's story of "super-sensual" love, *Die wandernde Seele* and Ferdinand Runkel's *Das rote Brevier*. Stories of the sea are A. Schmid-Brake's *Georg Rath-See-maschinist* and *Peter Storms Traumfahrt*. Joachim Delbrück's suggestive *Ein Spiel im Moll* bears the sub-title *A Chopin story*. The magic word *Freiheit* appears on the title-page of two novels, one by Friedrich Freksa, the other by Hans Wilhelm. Fritz von Ostini's story of the criminal court is entitled *Tat und Schuld*. A number of Swiss writers have made their appearance: Robert Wehrli with *Zur Scholle*, Arthur Neustadt with a story of the Engadin, *Surlej*, and Rudolf Schwarz with *Das Vau im Schnitzlikon* and *Der Abgott am Münster*. E. von Keyserling, whose society stories have an elegance unusual in German fiction, has written *Feiertagskinder*. Augustus Schmehl, a newcomer, calls his volume of short stories *Die Bekehrung des Abbé* and adds the subtitle *Preziose Geschichten*. Jakob Wassermann, who is by many critics considered Germany's master story-teller figures on the list with a two volume novel *Christian Wahnschaffe*. Of the brothers Thomas and Heinrich Mann, the former remains true to his conventional tendencies in *Die Armen*; while his brother, one of the few German writers who disapproved of the policy of imperial Germany, has followed up his *Professor Unrat* with *Untertan*. Among long-familiar names that recently appeared are Louise Westkirch with *Die vom Rosenhof*, Charlotte Niese with *Damals*, E. von Adler-Ballestrem with *Die Fliege im Bernstein*, Gabriele Reuter with *Die Jugend einer Idealistin* and *Die Herrin*, Carry Brachvogel with *Das Glück der Erde* and Marie Eugénie delle Grazie, the veteran Austrian writer, with *Donaukind* and *Das Buch der Liebe*. A newcomer who is much heralded in the press is Richard Knies, author of the peasant story *Die Herlishofer und ihr Pfarrer*. Clara Ratzke's *Die Gasse* and Juliane Krawath's *Eros* also signalize successful débuts.

DRAMA. The theatres of Germany have suffered little during the revolutionary upheavals and radical changes of the past year. According to statistical data concerning first performances for the season ending July, 1919, Berlin has had 25 premières, Frankfurt nine, cities like Munich, Leipsic, Düsseldorf and others an average of four. The Shakespeare *Jahrbuch* states that there were given 177 Shakespeare performances in Berlin alone. Among the new plays none seem to have had a great success. Hermann Sudermann succeeded by his comedy *Das höhere Leben* thoroughly to disgust even fair-minded critics. Max Halbe, whose *Youth* is not unknown in America, figures on the list with a "dramatic legend," called *Schloss Zeitvorbei*. Ernst Hardt, the Schiller prize-winner of a few years ago, brought out a subtly symbolical play *Die Quelle* which he calls "scenic prologue," and the setting whereof is Weimar, Karl Sternheim, who delights in going to the utmost limit of what is permissible on the stage and the printed page and recently had to appear in court, scored a success with his political drama in three acts *Tabula rasa*. Roda-Roda, one of the pillars of the *Simplizissimus* staff, promptly dramatized the Munich revolution in *Der Minister*, while Wilhelm Speyer in presenting his anti-revolutionary comedy, *Der Revolutionär*, found it

necessary specially to mention that it was written in 1917. Karl Schönherr, the Austrian, brought out a revised version of his old play *Das Königreich*, which proved very much more effective than the original. Frank Wedekind, who died towards the end of the foregoing year, figures on the list with *Elina Erweckung*, which he calls a fragment of a drama, and the pastoral play *Felix und Galathea*. Stefan Zweig, the Austrian poet who has become known in America through his book on Verhaeren, does not tire in attempting drama, though his vein is mainly lyrical, his poetic drama is called *Legende des Lebens*. Richard Beer-Hofmann's dramatic prelude *Jacob's Traum*, Max Beer's *Der Erlöser*, Ernst Barlach's *Der arme Vetter*, Emil Sandt's *Die Brüder*, Victor Georgen's comedy *Der blinde Gott*, Franz Löser's peasant-drama *Die Herrgottsbrücke*, Jacob Löwenberg's poetic drama *Aelfrid*, Lola Landau's *Urlaub*, and Rudolf Leonhard's tragedy *Die Vorhölle*, though not without interesting features, fall short of real dramatic vitality. Considerable discussion was aroused by Franz Kaibel's comedy on the Enoch Arden motive in carnival setting *Fröhliche Wiederkehr*, by Hermann Kessner's tragicomedy of a politician, *Summa summarum*, Alfred Nagel's Ibsenian drama *Anne Nielsen's Ruhm*, Maja Loehr's five-act tragedy *Tristans Tod*, Waldfried Burggraf's mystery play *Mammon*, which seems to augur a revival of Christianity, Hans Franck's *Freie Knechte*, which deals with the useless waste of human life in war, Rudolf Lackner's *Der Sturz des Apostels Paulus* with its use of Biblical motives, Otto Borngräber's mystery play of love, *Die andere Nacht*, Georg Kaiser's five-act drama *Gas*, Karl Röttger's one-act pacifist play *Die Krise* and Wilhelm Stöcklen's *Purpus*, noteworthy for its clever character analysis. Ernst Zahn, the Swiss novelist, appeared upon the stage with a drama called *Johannes a pro*. His countryman Emanuel von Bodmann, heretofore known only as a lyric poet, had a *Donatello* produced in Berlin, but neither work is likely to live long. Ferdinand Seebrecht has attempted a curious experiment in *Don Juan und Maria*. Walter Hasenclever, one of the younger dramatists who are being taken rather seriously, followed up his earlier work *Der Ketter* with a modernized version of *Antigone*. Oskar Kokoschka, the Austrian poet-painter, has also once more, though with no more success than before, ventured forth into drama; his two plays are *Der brennende Dornbusch* and *Hiob*. Another Austrian writer, known so far only as author of some distinctive verse, Anton Wildgans, made an ambitious dramatic attempt in the five-act tragedy *Dies irae*. Ernst von Wolzogen, the humorist who some years ago lectured in the United States and on his return published a book on this country, suggestively called *Dollarica*, remains true to his cabaret style in the three-act comedy called *Weibchen*. An indefatigable aspirant for dramatic success is Herbert Eulenberg, who, however, always falls short of real achievement. He appears on the list of the year with a festival play *Die Insel*, a play called dramatic causerie *Die Glücklichen*, a semi-historical drama of the year 1466 dealing with Poles and Germans *Das Ende der Marienburg*, and a five-act tragedy, *Leidenschaft*, which received a prize at the Vienna Volkstheatre. One of the most sensational performances in Berlin was that of Else Lasker-Schueler's weird five-

act drama, *Die Wupper*, which prominent critics called insolently original. A breach of professional tact towards Señor Ibañez is suggested in the title of three one-act plays by an unknown writer, Leo Weissmantel: *Die Reiter der Apokalypse*, recently published in Würzburg.

LYRICS, EPICS, ETC. The volumes of verse published during the year are numerous and cover a wide range of subjects. Christian Morgenstern, a writer who has the rare distinction of shunning publicity and limiting his production, appears on the market after many years of silence; his book is entitled *Stufen* and is announced as an "evolution in aphorisms and diary notes." Richard Schaukal, the Austrian, calls his new book simply *Verse*, as Robert Walser his little volume *Gedichte*. It is curious that German critics so often emphasize the fact, when a book they review is by a Catholic; in this way attention has been called to Hans von Hammerstein's songs, pictures and ballads under the title *Zwischen Traum und Tagen* and to the verse-epics *Aus Herz und Heimat* by Br. Willram. Two Swiss poets appear among the newcomers of the year: Gottfried Bohnenblust with *O mein Vaterland* and Max Geilinger with *Der Weg ins Weite*. A note of local patriotism is struck by Carl Bock in *Alt-Döbern*. Carl Lange figures on the title-page of a volume of verse called *Sturm aus der Tiefe*. A book of political poems by Hermann Haders is entitled *Van deutschen Heiland*. Jacob Kniep's miracles and visions *Vom lebendigen Gott* have a note of fervor and sincerity which made a profound impression. Walter Heymann's last book of verse is called *Fahrt und Flug*. Ernst Lissauer, the famous bard of hatred, has written *Die ewigen Pfingsten*.

ART. The sumptuous volumes by Dr. Hugo Kehrer on Rubens, with 80 illustrations and on Zurbaran with 60, as also the book by E. W. Bredt on *Rembrandt's Erzählungen* with 70 illustrations and the no less profusely illustrated volume on the artist Neureuther, called *Bilder um Lieder* bear no date of publication, but seem to be of recent issue. A book by Georg Kutzke, *Voraussetzungen zur künstlerischen Weltmission der Deutschen* bears a title which suggests the undiminished national conceit of the generation.

CRITICISM. The number of critical works is as usual very great. A new enterprise is Horst Stobbe's *Almanach der Bücherstube*, a sort of annual for book lovers and librarians. An interesting subject is treated in Max Scherrer's *Kampf und Krieg im deutschen Drama von Gottsched bis Kleist*. There are books of commentaries and criticism on Kleist, Hölderlin, Jean Paul, who is called prophet of peace and freedom; Wieland, Luther, Kant, Dürer, Fichte, and of course Goethe and Schiller. Shakespeare-literature has also been enriched by some volumes. Of modern writers Gottfried Keller, Rainer Maria Rilke, J. V. Widmann and Frank Wedekind have been the subjects of special volumes. The Swiss critic and historian Adolf Frey has published a book on the poets of his country. Among foreign writers Walt Whitman, Romain Rolland and Henri Barbusse have received much attention.

MEMOIRS. Significant for the attitude and sentiment of the German poet-patriots of the time is the volume by Richard Dehmel, *Kriegstagebuch*, in which he declares himself for the fatherland and the war against all mankind.

Georg Herrmann, the novelist, has published a volume of *Randbemerkungen 1914-17*. Peter Altenberg, the whimsical Austrian, whose death is deplored by many admirers, has left us a volume of recollections, *Mein Lebensabend*. Memories of Peter Rosegger are revived by the appearance of his *Abenddämmerung*. Selections from the note-books of Julius Rodenberg, whose place among the old editors of Berlin has been difficult to fill, are collected in *Aus seinen Tagebüchern*. Among the many volumes of letters, the selection from those of Hans von Bülow is likely to prove of great interest.

HISTORY, GEOGRAPHY, TRAVEL. Numerous books on the countries figuring in the war have been written by German authors. Palestine and Russia have called forth a large number. Among the latter the book on the Russian revolution by Alfons Pacquet, a much-traveled poet and man of the world, is likely to prove of value.

POLITICS. Among the many volumes on the war, those by von Tirpitz, Ludendorff, Helfferich and Bethman-Hollweg are the most widely read. Czernin's *Im Weltkriege* is likely to rival them in popularity. Dr. August Müller's *Sozialisierung oder Sozialismus* deals with a timely subject. Dr. Kurt Mühsam's *Wie wir belogen wurden* is founded upon the documentary evidence which has established the mendacity of official Germany beyond any doubt. Significant for the status of Germany's sexual morality is the appearance of such books as Professor Grotjohann's *Die hygienische Forderung* and Grete Meisel Hess's *Das Wesen der Geschlechtlichkeit*, a two-volume work in which she pleads for return to the ideal of monogamy. Of timely importance are Joh. W. Harmich's *Skizzen und Stimmungen aus der Weimarer deutschen Nationalversammlung* and the famous German industrial magnate, Walter Rathenau, has also added to the literature of current topics by three booklets: *Nach der Flut*, *Der Kaiser* and *Der neue Staat*.

NECROLOGY. The year's list of dead is large, though it contains few names counted among the greatest. Foremost among them is Hedwig Dohm, the valiant champion of woman's rights, who some 40 years ago created a sensation in Germany by her feminist works and has since been a power for good among the country's intelligent womanhood. Others are Paul Lindau, the veteran novelist, dramatist and editor, Peter Altenberg, one of the most original of modern German writers, Gustav Landauer, prominent in the generation of the eighties, Leopold Adler, director of the court theatre of Braunschweig, Carl Busse, one of Germany's most popular lyric poets, Hermione von Preuschen, the poet-painter and traveler, Eduard von Tempelty, a dramatist, Martin Bielitz, a lyric poet, Dr. Paul Deussen of the university of Kiel, an authority on Schopenhauer and the philosophy of India, Dr. Max Georg Zimmermann, lecturer on art history at Bonn, August Trinius, a writer of and on Thuringia, and others.

GERMAN NEW GUINEA. A former possession of Germany, constituting a protectorate comprising the northern section of the southeastern part of the island of New Guinea, along with the Bismarck Archipelago and the German Solomon Islands. The Caroline and Mariana islands were dependencies. The protectorate was occupied by the Australians on Sept. 12, 1914. See **WAR OF THE NATIONS**.

GERMAN PROTECTORATES. The dominions of Germany over-seas were attacked by the Allies at the beginning of the war and their conquest was almost complete by the close of 1917 and was entirely completed in 1918. They comprised in Africa the colonies of East Africa, Kamerun, Togo, and Southwest Africa; in the Pacific New Guinea (with the Caroline and Mariana islands), Palau, German Samoa and the Marshall islands, and in the Far East Kiaochow. Total area, 1,140,117 square miles; total population, 13,258,000. Their ultimate destination was subject to the Peace Conference. See article **WAR OF THE NATIONS**.

GERMAN SAMOA. A former German protectorate comprising that portion of the Samoan group which lies to the west of longitude 171° east; area, about 994 square miles, and population, about 40,000. They were occupied by the New Zealand force Aug. 29, 1914, and their ultimate destination was subject to the Peace Conference. See article **WAR OF THE NATIONS**.

GERMAN SOUTHWEST AFRICA. A former protectorate of Germany lying between Angola and the Cape Province of the union of South Africa. For statistical details see preceding **YEAR BOOKS**. Its status was subject to the Peace Conference. See **WAR OF THE NATIONS**.

GERMANY. Before the revolution of 1918 the German empire was a constitutional monarchy, consisting of 25 federated states and an imperial territory (Reichsland), situated in central Europe. In the closing months of 1918 it was under a provisional republican government, and in 1919 it was definitely constituted a republic by the constitution, which went into effect in August.

AREA AND POPULATION. The 25 states of the German Republic have an approximate area of 540,857.5 square kilometers, exclusive of the German part of Lake Constance, and the North Sea Lagoons. This is a little larger than the area of continental France, and, when expressed in square miles, is 208,825.2 square miles. The population was estimated a month before the war, June 30, 1914, at 67,812,000. Because of the recent unsettled conditions in Germany, there are no statistics available for details of population later than those given in the preceding **YEAR BOOKS**, which are based on the census of 1910. The increase in population in 1910 of the countries which now compose the German Republic, was 1.3 per cent. For details as to population, density, births, marriages, deaths, religious distribution, emigration and immigration, etc., the reader is referred to the issues preceding the 1918 **YEAR BOOK**. To facilitate reference, a summary of the figures is repeated below, showing the population by states according to the 1910 census, together with the area, political status being indicated in the former Empire by the letters following the names, *K.*, Kingdom; *G.D.*, Grand Duchy; *D.*, Duchy; *P.*, Principality; *F.C.*, Free City; *R.*, Reichsland.

States	Sq. m.	Pop. 1900	Pop. 1910
Prussia (<i>k</i>)	134,663.9	34,472,509	40,165,219
Bavaria (<i>k</i>)	29,293.5	6,167,057	6,886,291
Saxony (<i>k</i>)	5,788.8	4,202,216	4,806,661
Württemberg (<i>k</i>)	7,531.8	2,169,480	2,437,574
Baden (<i>gd</i>)	5,818.6	1,867,944	2,142,838
Hesse (<i>gd</i>)	2,969.5	1,119,898	1,282,051
Mecklenburg-Schwerin (<i>gd</i>)	5,068.3	607,770	639,958

States	Sq. m.	Pop. 1900	Pop. 1910
Saxe-Weimar (gd) ..	1,898.8	862,873	417,149
Mecklenburg-			
Strelitz (gd)	1,131.1	102,602	106,442
Oldenburg (gd)	2,482.3	399,180	483,042
Brunswick (d)	1,417.8	464,333	494,339
Saxe-Meiningen (d) ..	952.8	250,731	278,762
Saxe-Altenburg (d) ..	511.0	194,914	216,128
Saxe-Coburg-			
Gotha (d)	763.2	229,550	257,177
Anhalt (d)	887.8	316,085	331,128
Schwartzburg-			
Sondershausen (p).	332.9	80,898	89,917
Schwartzburg-			
Rudolstadt (p)	363.0	93,059	100,072
Waldeck (p)	432.8	57,918	61,707
Ruess Elder Line (p)	122.1	68,396	72,769
Ruess Younger			
Line (p)	319.2	139,210	152,752
Schaumburg-Lippe (p)	131.4	48,132	46,652
Lippe (p)	469.4	138,952	150,937
Lübeck (fc)	114.9	96,775	116,599
Bremen (fc)	99.0	224,882	299,526
Hamburg (fc)	160.0	768,349	1,014,664
Alsace-Lorraine (r) ..	5,606.9	1,719,470	1,784,014
Total	208,825.2	56,367,178	64,925,993

EDUCATION. Education is general and compulsory throughout Germany. Prussian laws require the establishment of elementary schools in every town. The school age is from six to 14. From the school census of 1911, we find that there were 61,557 schools, with a total of 148,217 male teachers, and 39,268 female teachers, and a total attendance of 10,309,949. The following table gives the statistics for the summer half-year of 1918 for the technical high schools, which have the power of granting degrees and number 11.

Schools	Teaching staff	Students
Berlin	176	429
Munich	74	410
Darmstadt	88	174
Karlsruhe	91	162
Hanover	80	152
Dresden	73	273
Stuttgart	81	114
Aachen	84	253
Brunswick	55	75
Danzig	57	123
Breslau	42	66
Totals	901	2,231
Total for 1917		1,721
Normal peace times		12,000

There are various schools and universities for agriculture, veterinary high schools, schools of mining, architecture, building, forestry, art-industry, commercial schools, textile schools, special metal schools, for wood-working, for ceramic industries, for naval architecture and engineering, for ship's engineers, for navigation, and for music. There is a naval academy and school at Kiel, with military academies at Berlin and Munich, not including the 47 schools of navigation, 9 military schools, and 9 cadet institutions. There are 22 universities in the German Republic, with a total enrollment early in 1918, of 64,842 students, but the number in residence was only 11,500 men and 5259 women.

PRODUCTION. Following figures for agriculture give the areas under the principal crops, in acres:

	1916	1917	1918
Wheat	3,996,820	3,615,182	3,588,395
Rye	14,910,302	13,810,050	14,366,302
Barley (summer) ..	3,721,685	3,568,872	3,412,857
Oats	8,861,428	8,726,507	8,165,280
Potatoes	6,861,625	6,258,877	6,818,860
Beets	1,029,890	1,031,155	1,004,265

The total yield in metric tons, according to the *Statesman's Year Book* for 1919, was:

	1916	1917	1918
Wheat	2,999,385	2,126,005	2,458,418
Rye	8,902,843	6,977,191	8,009,090
Barley	2,745,088	1,821,238	2,064,588
Oats	6,928,293	3,628,253	4,680,755
Potatoes	24,691,170	34,410,982	29,469,718
Beets	10,137,975	9,987,321	9,883,800

The crop conditions in the fall of 1919 did not measure up to the expectations, and were less satisfactory than plans had indicated. Scientific methods and state administration characterize the German forestry industry, which is of great importance. In 1919, of the forest area, one-third (11,225,660 acres), was under foliage trees, birch, ash, oak, and beech, etc., and two-thirds (23,344,240 acres), have pine, white fir, red fir, larch, etc. In normal peace times the yards of timber produced was in the vicinity of 26,000,000 cubic yards, and of firewood, over 23,000,000 cubic yards.

MINERALS. Prussia contains the chief mining centres, Westphalia, Rhenish Prussia, Silesia, with coal and iron, Harz with silver and copper, and Silesia with zinc. The new potash law went into effect in Germany on Apr. 24, 1919, designed to socialize the potash industry by giving the workers a larger share in its working and profits, and by unifying its interests under government control. It was expected in the reorganization that the executive regulations, when completed, would provide for four bureaus, an examining bureau, a bureau for appeals, a wage-examination bureau, and a technical agricultural bureau. The examining bureau was to have supervision of matter of current business, including the fixing of percentages of participation by the various mines in current sales, and decisions relative to the interests of employees. The bureau of appeals was to settle disputes arising between mine owners concerning the allotment of shares of participation in potash sales. Strong representation for the employees was a feature of the wage-examination bureau, whose function would be the settlement of wage disputes. The functions of the technical agricultural bureau were to consist largely of domestic propaganda and advertising with a view to promoting and increasing the use of potash in Germany. This bureau was to operate only in the domestic field, leaving the potash syndicate free, as before, to choose its own methods of foreign advertising. In 1917, German agriculture consumed about 87 per cent of the output of the mines, whereas, in 1913, 55 per cent was so used, the balance having been exported. Investigations indicated a total stock of refined salts at all mines of 25,000 to 35,000 tons, which, in comparison with the normal output, must be regarded as quite small. In November, 1919, official German statements indicated that because of the reduction in the standing army, and also in the manufacture of munitions and equipment, it was believed that as many men would be released from these activities to engage in useful or productive occupations, as had been lost in the war. If there should be no mistake in this estimate, then it was possible for Germany to begin at an early date to experience a great industrial and commercial awakening. Coal production seemed to offer a difficulty in labor organization, and it was diffi-

cult to interest operators of coal mines in starting up their mines until it was fully determined just how France was to be supplied with the coal demanded by the peace terms. The output of potash in 1918 was 10,019,000,000 cwt., as against 10,942,000,000 cwt. in 1917.

COMMERCE. Since 1879 Germany has pursued the protectionist policy in her commercial relations. Nearly one-half the imports are subject to duty, the duties levied amounting in 1919 to over 20 per cent of the value of imports subject to duty. German newspapers indicated that the German manufacturers of agricultural machinery had recently been receiving large orders from neutral countries. Exports of agricultural machinery to Poland had become very extensive. The factories, however, were unable to fill more than 50 per cent of the orders on account of their diminished productivity. There was a movement on foot to organize German automobile manufactures into what appeared to be a cartel, similar in form to the German dye-syndicate. Generally speaking, there was no great optimism among German merchants and manufacturers with regard to the question of foreign trade after the ratification of the peace treaty by the United States. It was considered that the trans-oceanic trade would play only a secondary part beside the exchange of goods over land borders. Only the outline of a continental economic system was in sight, under which Germany would be mainly relegated to the unsafe and difficult east-European markets. Dr. C. Schneider, chief of the economic department of the German Foreign Office, expressed himself with regard to the above situation to the effect that without a commercial fleet, and without colonies, with German property abroad liquidated, and German branch offices closed, and without any settled exchange facilities, Germany had no chance whatsoever of carrying on trans-oceanic trade on her own account. With regard to Germany's most important industry, iron and steel, which has been the basis of such a large part of Germany's exports, Dr. Schneider thought it would undergo a very radical change, which would influence even Sweden, as an iron-exporting country.

In connection with the resumption of British trade with Germany, details were furnished by the president of the board of trade, showing that during the first 10½ months from the signing of the armistice, the United Kingdom exported to Germany goods to the value of over \$80,000,000, and received from Germany imports valued at \$1,087,000. (See GREAT BRITAIN.) The following information was supplied at the close of the year by the United States Bureau of Foreign and Domestic Commerce, based on reports of the Trade Commissioner in London, and on figures prepared by the Division of Statistics:

There were, toward the close of the year certain advantages on the side of German exporters, such as the low purchasing power of the mark, which meant that all costs in Germany itself were small compared with costs in England where the mark was reckoned at 100 to a pound sterling. When bituminous coal was quoted at 78.43 to 80.6 marks a ton, and coke at 112.75 to 123.75 marks, the real cost to a manufacturer corresponded with a price in England at 15s. to 16s. a ton for coal, and 22s. to 25s. for coke. English delivered prices were almost double.

Railway rates, wages, and iron ore were all high in marks and low in real values, even after the recent additions, such as the 50 per cent added to railway rates on October 1st. All over the continent there was a keen demand for goods, and, according to the Rhenish-Westphalia correspondent of the *Frankfurter*, "encouraged by the low exchange, neutral countries were pouring in orders. The German fear that foreign agitation would do us harm has not been justified; indeed, Britain was one of the first enemy States to import large quantities of steel goods from Solingen." The United States, too, according to the same journal, had sent agents to buy up all they could.

Combines, trusts, or kartells had been great engines for pushing German trade before the war, and were getting to work again. The Stahlwerksverband was renewed until March 1st, after having been unnecessary during the war, with its insatiable demand for iron and steel. The Machine Tool Association created a new organization, and the electric-lamp factories of the Auer Gesellschaft were combined with those of the Allgemeine Elektrizitäts. Various firms in the motor trade combined to meet the competition of American machines and new combinations were starting in other trades. Then a great "National Union for German Industry" was formed to embrace all branches of production, both raw material and finishing, thereby uniting two old enemies, the manufacturer and the big concerns who used to supply him with fuel and raw materials. Some remarkable evidence of a real revival was to be found in the German National Fair at Leipzig. Most of the 10,500 firms exhibiting were German, and the attendance reached the record figure of 118,000, or about 20 per cent more than in any previous year. About seven thousand foreign buyers are said to have been present. With the idea of getting into foreign markets again, German manufacturers concentrated on mechanical devices and novelties, machine tools, and electrical inventions. In these products it is mechanical precision which counts, while the raw material and coal used bears a small percentage to the value of the finished article.

On the other hand, German exports were severely hampered by the lack of certain raw materials and the shortage of coal. Things made of wood, such as toys, could be turned out easily enough, but even here it was stated on all sides that the factories were at a standstill. Dolls, for instance, were poorly clothed and made of cheap material. Labor, too, according to the *Journal of Commerce*, was paid two or three times as much as before the war, in marks, and does about two-thirds as much work. Lack of food and the high percentage of war cripples contributed to the drop in output per man.

Record-breaking exports to Germany of American pork, beef, and other meat and dairy products, produced in response to war-time appeals, were made during October and November of the past year, in addition to the extraordinary quantities supplied to Belgium and other allied countries before and since the armistice. These products, with cotton and leaf tobacco, constitute the bulk of the United States exports to Germany for the five months ending November, 1919. Imports for the same period showed monthly increases from \$291,166 in July to \$3,-

228,919 in November. These imported German goods consisted chiefly of chemicals, fertilizers, furs, sugar-beet seed, unengraved lithographic stones, beads and bead ornaments, china and crockery ware, glass bottles, sheet and plate glass, cutlery, needles, leather gloves, musical instruments, imitation precious stones, artificial silk yarns and threads, and dolls and other toys.

Monthly imports from and exports to Germany for August to November and the total for the 11 months ending November, 1919, as compared with the corresponding periods of the pre-war year 1913, were:

Mo.	Imports		Exports	
	1913	1919	1913	1919
Aug.	\$15,626,176	\$236,293	\$21,801,274	\$11,674,257
Sept.	18,809,555	1,586,963	34,789,624	8,836,693
Oct.	14,815,675	2,157,608	48,433,396	20,663,521
Nov.	14,256,993	3,228,919	48,072,784	23,044,142
11 mos. ending Nov.	165,939,267	8,143,706	318,720,256	75,464,237

Taking into consideration the difference between post-war and pre-war values, these imports from Germany seemed insignificant as compared with the pre-war trade. In view, however, of Germany's exhausted condition since the war, the urgent need of foodstuffs, and the depreciated value of the mark, the gain shown in the import figures from month to month was notable. The growth seemed to indicate that a continuous effort was being made to re-establish this foreign trade.

LIVING CONDITIONS. All items of cost were greatly increased over pre-war costs—labor, about three times, coal much higher, and many other supplies and requirements ran as much as 10 times pre-war costs. It was stated that food was plentiful in Hamburg and cheaper than in the United States. At the best hotels and restaurants, one could secure excellent meals. Steaks, veal chops, etc., were served upon request, although they did not appear on the menus. Meat was scarce, much of it being obtained in a roundabout way, and contrary to law. Food for the masses was scarce. The following ration list shows the government's per capita allowance for a week ending Nov. 15, 1919: Bread, $4\frac{1}{2}$ lbs.; American rye flour, $\frac{1}{2}$ lb.; potatoes, 7 lbs.; butter, $\frac{1}{4}$ lb.; margarine, $\frac{1}{8}$ lb.; milk and eggs, only for children or sick adults (limited quantities); domestic sugar, $\frac{1}{8}$ lb.; imported sugar, $\frac{1}{8}$ lb.; sirup, $\frac{1}{4}$ lb.; corned beef, $\frac{1}{8}$ lb.; sausage $\frac{1}{4}$ lb.; horse-meat, canned, 2 lbs.; lard and dry salt meats, none. In the matter of wearing apparel, conditions were about the same. A tailor-made suit cost from 1500 to 1800 marks, against a normal price of 150 marks. Men's hats, formerly costing from 10 to 15 marks, sold at 150 marks. Other articles were in proportion. Woolen underwear, except for inferior grades, was impossible to secure. The German people fully realized the burden they imposed upon themselves, and to many the situation appeared serious and almost hopeless. Others took a brighter view, and felt confident that the return to normal would be with a speed that would surprise the world. Notwithstanding the depression, there was hardly a store or office for rent, and it was almost impossible to secure living quarters. Luxuries appeared to be freely purchased.

Y-B—19—10

RAILWAYS. The total railway mileage, Jan. 1, 1917, was 40,255, of which all but 2926 belonged to the state systems. The *Berliner Boersen Zeitung*, of Sept. 16, 1919, stated that a bill had been introduced into the Prussian legislature, authorizing the Prussian-Hessian State Railways to increase their freight rates by as much as 50 per cent, commencing Oct. 1, 1919. On Apr. 1, 1919 the passenger rates were increased generally, in some cases doubled, and the freight rates were generally increased by 60 per cent. From October first a new increase in passenger fares went into effect for travel on ordinary trains. Supplementary to these new rates, additional fares will be charged on express trains according to a zoning system. Destinations within 50 miles of the starting point are in the first zone, those within 100 miles in the second zone, and everything beyond this distance is in the third zone. The supplementary fare for the third zone was nine marks for first-class accommodations. The estimated receipts for 1919 were 4,800,000,000 marks. From the present prospects it appeared that the actual income would only amount to about 3,760,000,000 marks, unless increases were allowed. The 1919 expenditures were originally estimated at 4,860,000,000 marks, but later estimates indicated a strong possibility that they would amount to about 7,200,000,000 marks. (The normal exchange value of the mark is \$238.)

Labor difficulties and shortage and deficiencies of equipment rendered railway operation in Germany during 1919 very unsatisfactory. At the end of the year it was estimated that the deficit on the Prussian railways amounted to 634,000,000 marks (nominally \$158,500,000), of which 160,000,000 marks (\$40,000,000) went to cover indemnities for railway thefts. The total working expenses for the year were estimated to amount to 7,500,000,000 marks (nominally \$1,875,000,000).

The Prussian State Railways were seeking to increase their locomotives and in August 223 were delivered from the works, in September 137, and in October, 96. At the end of the year over 2000 were on order. It was also announced that the German government had given the Krupp Works a contract for the manufacture and delivery of 100 locomotives and 2000 15-ton freight cars per year. In connection with this contract it was reported that the price to be paid would be based upon the actual cost of the material used and of the labor, and that the manufacturers themselves would only be allowed a commission profit of 2 per cent. Directly after the armistice, Krupps converted two of the munition factories into rolling stock factories, and these two factories were said to have a total capacity of 300 heavy locomotives and 2500 15-ton freight cars per year or approximately one locomotive and 10 cars daily.

In fact at the end of the year the last and greatest of the "Hindenburg" buildings, covering an area of 18 acres was devoted to the erection of locomotives and the first of these was delivered early in December.

SHIPPING. The shipping during the year of 1919 had not recovered perceptibly from the practical stagnation that it was left in at the close of the war. The coast trade had opened up, but so far trans-oceanic service by German companies had been impossible to any great extent.

FINANCE. Budget estimates, omitting expenditures for the army and navy, that were to come out of special war credits, balanced for the year ending Mar. 31, 1919, at 6,546,699,278 marks. The provisional budget for 1919-20 balanced at about 13,000,000,000 marks. The total funded debt on Oct. 1, 1917 amounted to 85,071,712,700 marks, of which 51,044,200 marks bear interest at 5 per cent, 1,129,817,300 marks at 4 per cent, 1,971,027,800 marks at 3½ per cent, 1,630,988,300 marks at 3 per cent, with treasury bills amounting to 2,158,730,700 at 5 per cent, 4,038,979,900 at 4½ per cent, and 80,000,000 marks at 4 per cent. There was also a debt of 23,017,629,500 marks of treasury bills free of interest. At the beginning of 1918, the total loan credits of the imperial government amounted to 98,841,493,791 marks. At the beginning of 1919 the German war debt was officially given at 157,700,000,000 marks, the interest on which sum would require 7,900,000,000 marks. The following table from the *Statesman's Year Book* of 1919 exhibits the estimates of revenue and expenditure in pounds sterling for five years ending Mar. 31, 1919, at the exchange rate of 20 marks to one pound:

Year ending March 31	Ordinary	Revenue Extraordinary	Total
1915	170,258,920	519,637,650	689,896,570
1916	166,154,070	502,117,100	668,271,170
1917	182,963,096	4,375,892	187,338,988
1918	247,093,803	4,296,461	251,390,264
1919	366,634,965	5,403,416	372,038,381

Year ending March 31	Ordinary	Expenditures Extraordinary	Total
1915	170,258,920	519,637,650	689,896,570
1916	166,154,070	502,117,100	668,271,170
1917	182,963,096	1,204,960,676	1,387,923,772
1918	247,093,803	1,504,660,249	1,751,754,052
1919	366,634,965	21,303,416	387,938,381

The following report was published by the United States Bureau of Foreign and Domestic Commerce in regard to the financial situation in the closing months of the year:

Finance Minister Erzberger submitted to the German National Assembly in September a memorandum upon which he was understood to have based the taxation plans which the German Legislature had been discussing for several months. In this memorandum the fiscal expenditures were summed up as follows:

	Marks
Total expenditures of German government	17,500,000,000
Total expenditures of Federal States and municipalities	6,500,000,000
Grand total	24,000,000,000

The governmental total of 17,500,000,000 marks was made up as follows: Service of debts, 10,000,000,000 marks; pensions, etc., 4,300,000,000 marks; administration, 1,700,000,000 marks; other current expenses, 1,500,000,000 marks. The total governmental budget in 1913 amounted to 2,430,000,000 marks, and included 230,000,000 marks for "service of debts," 200,000,000 for administration, and 1,500,000,000 for other current expenses. Of the total requirements of the government about 7,000,000,000 marks were provided for by taxes already in operation, as follows: Current tax receipts before the war, 1,767,000,000 marks; increase in

taxes by laws during the war, 4,036,000,000 marks; increase in taxes by laws just passed, 1,150,000,000 marks. In the last-named sum are included the items shown in the following table:

Taxes	Total income Marks	National govern- ment's share Marks	Increase for govern- ment over previous taxes Marks
Inheritance tax	700,000,000	560,000,000	435,000,000
Tax on transfer			
of land	226,000,000	114,000,000	74,000,000
Sugar tax	340,000,000	340,000,000	130,000,000
Tobacco tax	750,000,000	750,000,000	450,000,000
Playing-card tax	60,000,000	30,000,000	30,000,000
Match tax	50,000,000	50,000,000	23,000,000
Tax on luxuries	13,000,000	10,500,000	8,500,000

With reference to the 10,000,000,000 marks not provided for above, it was expected that at least 3,000,000,000 marks would be raised by the proposed tax on sales and between 2,500,000,000 and 3,000,000,000 marks by the proposed property tax; which would leave a deficit of only 4,000,000,000 or 4,500,000,000 marks. It was expected that a heavy national income tax would be proposed to cover national deficits and also local deficits (ie. of the Federal States and municipalities). The Minister of Finance stated that this tax would probably amount to about 50 per cent of all incomes.

Georg Bernhard, writing for the *Vossische Zeitung*, criticized Minister Erzberger's figures as follows:

"The annual requirements, including obligations arising from war loans, amount to 18,500,000,000 marks instead of 17,500,000,000 marks. This estimate does not include the as yet undetermined obligations arising from the Peace Treaty. At least 7,500,000,000 marks per annum should be allowed for this item. This brings the total annual requirements of the government up to 26 milliards instead of 17½ milliards. Apparently Finance Minister Erzberger has not given due attention to the decrease in receipts occasioned by the loss of German territory. With the corrections just mentioned, the amount as yet unprovided for is thus 18,500,000,000 marks instead of 10,000,000,000 marks."

Minister Erzberger stated that the estimated annual income from the National property tax or "National Emergency Sacrifice" was between 2½ and 3 milliard. By some these figures were believed to be much too high: the tax evaluation of private property in Germany was estimated before the war at between 150 and 200 milliard.

The National Assembly Committee of Ten, during the last week of September, was actively engaged in discussing those German taxation proposals which had not yet been definitely approved.

It was reported in the latter part of 1919 that preparations were being made for the establishment of several French banks. According to a report in the Amsterdam *Algemeen Handelsblad*, a considerable number of American banking and financial representatives were in Berlin establishing connections for future business. Finance Minister Erzberger stated in November, before the German National Assembly, that there were known to be 59 counterfeit imitations of the Reichsbank 50-mark notes in circulation. By Sept. 10, 1919 all these notes were withdrawn and ceased to be legal tender, exchangeable only at the Reichsbank. The establishment of a company for the furnishing of foreign exchange was announced from Berlin in

early 1920. The share capital, which is 300,000 marks (\$71,400 at par) was said to have been entirely furnished by the Ministry for Economics. The sale of requisitioned foreign bonds had not been completed. From a speech by Herr Haverstein, President of the Reichsbank, the following information as to the scarcity of circulating media in Germany is supplied. The total circulation of paper currency in bank notes and treasury notes from September 24th to Oct. 23, 1918, increased by 2,651,700,000 marks (\$631,104,600 normal value) as against 734,000,000 marks (\$174,692,000) in the corresponding period of the year previous. As early as July 1st, the Reichsbank had been obliged to add to the instruments of payment for purposes of both supply and demand, the round sum of 4,000,000,000 marks, (\$952,000,000 at par) which far surpassed the amount of all preceding quarters. For the purpose of preparing immediately and uniformly over the whole country a large quantity of new means of payment, the coupons of the 5 per cent war loan which fell due Jan. 2, 1919, were declared by decree of the Bundesrath to be legal means of payment up to the due date, when they, as heretofore, would be exchanged for other legal currency. By these means and several other emergency measures, the lack of instruments of payment was expected to be met.

DEFENSE. In 1919 the Landwehr and Landsturm were disbanded, and 150 field divisions of the army on the western front demobilized. Of the 20 divisions retained, over 2,000,000 were kept in arms. The old army corps centres have generally been reestablished. Voluntary enlistments had replaced demobilized units to the strength of 250,000 under arms, and 50,000 home guards, as established, until May 1, 1920. Estimates toward the latter part of 1919 indicated that a force of 1,400,000 men could be quickly mobilized. Indefinite plans as to the future generally characterize the Reichswehr, or new army, as it is called. A bill before the National Assembly in 1919 called for the creation of a national militia on the Swiss model.

The republican navy is not in the nature of an effective sea-fighting organization, but rather a coast defense police force. Pre-dreadnought battleships have become obsolete, and most of the guns have been removed from them. The first class of dreadnoughts were dismantled before the armistice, and the next class are in German ports, out of commission. All subsequent classes surrendered at Scapa Flow. The battle-cruiser *Mackensen* was under construction. A bill before the National Assembly in May, 1919, provided for the establishment of a volunteer and democratic navy for coast defense, removal of mines, and policing and protection of the fisheries.

GOVERNMENT. The reigning princes of the Federal States were deposed or abdicated when the Council of the People's Commissioners in Berlin assumed the government of the country. On Nov. 9, 1918, the abdication of the German Emperor was announced, and from that date, Germany became a republic. Arrangements for summoning a National Assembly were made, and the Imperial Parliament was declared dissolved. The elections for this body were held in January, 1919. The actual votes cast for the largest parties were: Majority Socialists, 11,112,450; Democrats, 5,552,930; Centre, 5,338,804; Con-

servatives, 2,729,186; Independent Socialists, 2,186,305, and the German People's party, 1,106,408. The meeting of the National Assembly on February 6th and Feb. 11, 1919, elected the first president of the Republic, Friedrich Ebert, who was in power at the beginning of 1920. On Feb. 13, 1919, the following cabinet was appointed: Prime Minister, Philipp Scheidemann; Minister of Finance and Vice-President of the Cabinet, Bernard Dernburg; Minister for Foreign Affairs, Count von Brockdorff-Rantzau; Minister for Home Affairs, Dr. Hugo Preuss; Minister of Labor, Gustav Bauer; Minister of Reconstruction, Herr Wissel; Minister for Food Supplies, Robert Schmidt; Minister for the Colonies, Dr. Bell; Minister of Justice, Herr Landsberg; Minister of Defense, Herr Gustav Noske; Minister of Posts, Herr Giesberts.

The New Constitution. The new constitution went into effect during the third week in August. It was divided into two principal parts: First, composition of the empire, and second, fundamental rights and duties of Germans. The first part consisted of seven sections of which the main parts were as follows: The German empire was declared a republic whose sovereignty was based on the people. Its territorial limits were defined and the national colors were announced as black, red, and gold. The rights of the empire in relation to foreign affairs and national defense were set forth. Each state was to have a liberal constitution and a parliament elected by universal, equal, and secret suffrage by all Germans, including women. The Reichstag which was to replace the temporary National Assembly was to be elected for four years. The president was to be elected for seven years by the entire people and not by the Assembly, and he was to conclude treaties and receive ambassadors, etc., but declarations of war and peace were to be proclaimed by the Reichstag, and treaties with foreign states were to be ratified by it. The chancellor's position was to correspond to that of a vice-president and he and the ministry were to be nominated by the president. The chancellor was to direct the foreign politics of the government and to be responsible for the cabinet; and the Reichstag was to have power to impeach the president, the chancellor, and the ministers. The imperial council should be composed of the representatives of the states, each of which should have at least one vote and the votes of the large states were to be proportionate to the population of each. The laws were to be submitted to a plebiscite if the president desired. Judges of the ordinary civil courts were to be nominated for life. Court-martials were abolished except in time of war and on board warships. The second part of the constitution relating to the rights and duties of Germans provided that all Germans should be equal before the law and that women should have the same rights and duties as men. Titles of nobility were to be considered simply as names and not to confer any rights or privileges. Marriage was declared to be the basis of the family life and the state undertook to watch with particular care over families having several children. Then followed a long list of the rights including the rights of assembly, etc., to which citizens were entitled. As to education, it was provided that all children should attend school for eight years and afterwards follow courses

in the higher schools to the age of 18; instruction was to be free and the state was to aid families and pupils who were without adequate means; every effort was to be made in the schools to inculcate a spirit of reconciliation with the other peoples of the world. Finally, an industrial council was established in which employees should have an advisory voice.

EVENTS OF JANUARY: ELECTIONS TO THE ASSEMBLY. At the close of the year 1918 the Radicals and Independents were overthrown at a joint meeting of the People's Commissioners and the Central Council, and thereupon the Majority Socialists including Noske came into power. Attempts to drive the Majority Socialists from power and prevent the holding of elections for the National Assembly continued during the early days of 1919, and the fear that the extreme element namely the Spartacides would effect a revolution continued. The year opened with serious disorders in Berlin, Munich, and other cities of Germany that threatened to bring the country into a state of chaos. On January 6th, Spartacides were reported to be marching against the government forces. Occasional rifle shots were fired and a few persons were wounded in Berlin. The government was reported to be ready to take strong measures. On January 3d similar outbreaks were reported at Munich. The demands of the revolutionaries in Berlin were presented in resolutions passed by the Soviet Congress in that city which were reported as follows: Immediate disarming of officers; removal of all marks of distinction between ranks; transfer of local command to workers' and soldiers' councils; election of officers by men; disbanding of the army, disarming of reactionary bodies, and the creation of the peoples' army; prompt action against the war ministry and supreme army command for its disregard of the resolutions of the Soviet Congress. At this time in Berlin it was estimated from fragmentary reports that about 20 had been killed and wounded. It was also said, however, that the supporters of Liebknecht seemed to avoid conflict with government troops. The forces of order were obviously in the majority, but it was doubtful whether they were well organized. The partisans of Liebknecht, though realizing that they were in a minority, apparently hoped by virtue of their organization to prevent the calling of the National Assembly. When the Soviet Congress opposed this by a large majority, they seemed to have decided to resort to violence. The police president, Eichhorn, who supported their views, was discharged and this was taken as an occasion for the uprising. One of their first acts was to seize the Wolff telegraph agency, and the news was therefore uncertain. The revolt had been long foretold. Bolshevism had for many months been penetrating the country, and Russian emissaries had been at work. Further fighting was reported in Berlin on January 14th, when it was said that the independent Socialists had proposed to come to an agreement with the government. At that time Herr Noske was appointed governor of the city. He proclaimed a state of siege and called the marines from Kiel. The government had also concentrated troops to combat terrorism. Fighting was going on, but in a desultory fashion, and to the disadvantage of the Spartacides who were reported to have lost a considerable number of

men. On January 13th, the government of Berlin was said to have things well in hand. The Spartacide movement, however, though thwarted in Berlin, seemed to be making headway in other parts of the country, especially in Rhenish Westphalia, where Düsseldorf was in the hands of the insurgents. Spartacide successes were also reported at Dresden, Bremen, and Stettin. On January 14th, the government forces succeeded in capturing the newspaper quarter of the Spartacides. According to the report of the German government on January 15th, the Spartacide movement had been finally suppressed. The casualties among them were reported as follows: Twelve killed; more than 30 wounded, and 450 taken prisoners. On the night of January 15th Karl Liebknecht and Rosa Luxemburg (q.q.v.) were killed in Berlin. According to the reports they had been arrested during the day and taken to a hotel. Crowds gathered and attacked the prisoners as they were on their way to prison. Liebknecht was shot by his escort while attempting to escape, and Rosa Luxemburg was killed by the mob. Later reports threw some doubt upon the question of Liebknecht's death as an examination of the body seemed to indicate that he had been shot in front. Reports were circulated that both were murdered by the soldiers.

Their death seemed for a time to have the effect of putting an end to the more serious disturbances. Elections for the National Assembly based on equal and universal franchise, were held January 19th and for the most part peaceably. The returns were as follows: Majority Socialists, 166 (89 in the last Reichstag); Christian People's party, that is the reorganized Centre or Clerical party, 93 (91 in 1917); Democratic party, combining the former Progressives and the National Liberals, 75; German National or Monarchist party, a combination of Conservatives and Pan-Germans, 34; Minority Socialists, 24; various minor parties, 11. It is to be noted that the Conservative party which had 45 seats in 1917 and the Pan-German which had 26 in that year both together were represented in the Assembly by only 34; and that the Progressives which had 46 in 1917 and the National Liberal which had 44 were reported together at only 75. The Minority Socialists who had 19 seats in 1917 had made a gain of seven. There were 34 women among the delegates. Weimar was chosen as the place for holding the Assembly greatly to the disgust of a strong element, mainly among reactionaries of Prussia. Dr. Eduard David was elected president of the Assembly and a Democrat and Conservative were elected vice-presidents.

ECONOMIC CONDITIONS. Early in the year the German department of agriculture gave a gloomy account of the prospects. The next crop promised badly, not more than half of the normal harvest being expected. This was due largely to the impoverishment of the soil. Only 80,000 tons of nitrates were available to meet the usual consumption which was 210,000 tons in time of peace, and the consumption of phosphates was only about a third of the usual quantity. The slaughter of domestic and other animals greatly reduced the supply of fertilizers. According to present prospects, a return to normal conditions was not to be expected before 1921. The national ministry of economic demobilization estimated the number

of men out of work in Germany in February as about 1,000,000. Moreover, the war had lessened to an incalculable degree the energy of the workmen, and their demand for employment. In Upper Silesia there had been a great increase in the cost of extracting coal, which added much to the cost of living. Everywhere there were strikes and bankruptcies. The demand of the workmen for an increase of wages added greatly to the economic difficulties. All through the year there were reports as to the serious distress in all branches of the economic life, but these on the other hand were frequently denied and attributed to the German exaggeration with a view to reducing the demands of her enemies. These reports began to come in at the beginning of the year, and continued down to its close. One of the first of them was based on observations by British officers who had visited Germany in January and February to carry on investigations in Berlin and other large centres. According to them unrest was diminishing on account of more suitable political conditions, and the firm stand of the government against the Spartacides, but unemployment and cost of living were increasing. It was estimated in Berlin that the number of unemployed at that time was over 200,000; in Hamburg, 72,000; in Munich, 32,000; and in Leipzig, 22,000. The rapid demobilization of the army and war industries accounted for this in part. Other reasons were: Hesitation of capitalists to undertake new ventures; high prices and high wages; lack of the will to work on the part of the working class, partly on account of the war, and partly on account of insufficient food which caused a lack of energy. In the coal fields conditions were reported to be stagnant. The Silesian and Saar Valley supplies had been cut off by the terms of the armistice, but coal was still raised in Westphalia. Railway transport had been crippled largely on account of the surrender of the great part of the stock under the terms of the armistice. It was reported that in the Hanover railway district, for example, the number of locomotives which in peace time was 1800 had fallen to 850, and that of these a large part were worn out. Staple articles of food were reported to be scarce with the result that the mass of the people were living upon insufficient rations. This caused great mortality among children and lowered the birth rate. Calculations as to the duration of present food stocks were uncertain, but in general the indications were unfavorable. The conclusion of the report was that Germany was in urgent need of revictualing; that the country was living on its capital as regards food supplies; and that it was threatened with either famine or Bolshevism.

DIFFICULTIES OF THE GOVERNMENT. In the first week in February fighting was reported at the chief German naval port on the North Sea, Wilhelmshaven, where the Spartacides made an attempt to seize the power. There was a bombardment of the port from the sea and there were conflicts in the streets. Meanwhile in Berlin conferences were taking place between the Majority Socialists and the German Democratic party with a view to forming a coalition before the meeting of the National Assembly at Weimar on February 6th. In the final returns the Majority Socialists failed to obtain command of the Prussian Diet although a combination between them and the Democrats in both Houses would

give a working majority. On the eve of the meeting of the National Assembly the Independents and the Spartacides were still endeavoring to embarrass the new government, and a congress of soldiers' councils was called in Berlin. The main difficulties before the new government were the control of the army and the menace of Bolshevism as embodied in the Spartacide movement. Precautions were taken by the government to protect the Assembly from possible Spartacide attack, a considerable force being sent from Berlin to surround the town. In the first week of February fighting was reported between the Spartacides and the government troops in the city of Bremen. According to the press the government at the end of February was in danger of overthrow. The strikes in Central Germany were said to be entirely political in their aim, the workmen demanding that their committees should have control of the mines and the iron industries. The railway men were also making similar demands. It was reported that the Republican guard could not be trusted by the government. The prime minister, Scheidemann, was believed to be losing control since he had underestimated the public demand for extreme democratic measures. The country as a whole was described as turning toward the Soviet and fast outgrowing the moderate spirit of the National Assembly. At this time the situation was analyzed in prominent newspapers as follows: The revolution of November 9th was characterized as an uprising of the masses against those who had deprived them of food for the past four years and a half. Its leaders were Socialist doctrinaires who promised a Socialist régime. They failed to realize this the moment they came into power, and they were then divided as to policy, some demanding a complete break with the past, and others urging a compromise. There was not only a split between the two Socialist sections, but a break with the Bavarian element that insisted upon the separation of the southern states from Prussia. The new Assembly appeared to be nothing more than the old Reichstag revived, and it was in danger of being superseded not by a rising of the great mass of the people, but by the efforts of a determined minority against a majority that did not know its own mind. At the end of February the extremist element was reported to be fast gaining ground, and in Bavaria the communistic system seemed on the point of triumph. The government was harassed by the reactionaries on the one hand and the revolutionists on the other, while economic discontent showed itself in repeated strikes. In Bavaria the reactionaries started a revolt, which was greatly stimulated by the murder on February 21st of the Bavarian Prime Minister, Kurt Eisner, by a former officer in the Prussian Guard. (See Paragraph below.) In Saxony a movement was started by the Spartacides to overthrow the government. In Berlin almost every day there were terrorist demonstrations against the assembly. On March 2d the government made an appeal to the nation against the attempts of the terrorists and declared that it would wage a relentless war upon them. There was a crisis early in March when the Independent Socialists made it plain that they too intended to overthrow the government. There was a large strike in Berlin on March 3d, which finally became a revolt of the radical element and spread to Bremen, Leipzig, Zeitz,

Hamburg, Königsberg and other cities and fighting ensued.

REVOLTS OF THE SPARTACIDES. On March 8th the insurrection of the Spartacides in Berlin was still going on. Street barricades were set up and nests of machine guns were hidden in various parts of the city, which the government forces sought out by means of aeroplanes. There was continuous fighting in the Moabit quarter. For several days the city was without newspapers or news. On March 10th, however, it was reported that the so-called general strike had come to an end, but the government troops were still occupied in clearing certain quarters of the city, such as Neu Köwlin. Charges that the Spartacides had resorted to acts of brutality were frequently made, and it was said that on March 8th organized bodies of criminals, who had captured the police, murdered a large number of them. In Lichtenberg 57 of the police officials were said to have been murdered by the Spartacides, and there was severe fighting going on there in the first week of March. On March 15th Herr Noske in the course of an address at the National Assembly, declaring that the insurrection in Berlin had been completely suppressed, attributed the responsibility for the revolt to the incitements of party organs, and the support of the movement by the extremists. This brought out protests from the Independent Socialists, but he repeated the charge that members of the Independent Socialists approved and encouraged these infamous practices. He said that the movement had fortunately turned out to be a failure, and that the rebellious marine detachment which had been the chief instrument in causing trouble existed no longer. From the opposition benches came the cry, "You have murdered them all," and he was loudly hissed by the minority element, but applauded with equal vigor by the majority. Nevertheless from public speeches and from the press it appeared that people generally feared a new outbreak at an early date. The newspapers of all shades of opinion published elaborate stories of atrocities in Berlin. Cases were cited of persons who were dragged into the street and literally torn to pieces by the mob. Among those who had been killed under peculiarly brutal circumstances were several officers including the commandant who had been sent to direct the Weimar defense force. During the previous riots in the industrial Rhenish and Westphalian districts, the Spartacides were said to have shot women and children, and in some instances clubbed them to death. The newspaper reports published in English did not contain the mention of any atrocity on the part of the government troops or supporters. All atrocities and murders throughout the revolt occurred, according to the press, exclusively at the hands of Spartacides.

Toward the end of March the government agreed to recognize the councils of workmen and soldiers as factors of economic life, but not as political bodies. Thereupon (March 28th) the Independent Liberal, Haase, made a savage attack upon the Minister of War to which the latter replied that the radical press was responsible for the acts of violence in Berlin. On the other hand the ministers displeased the Conservatives and Centre by conceding too much to the radicals. The disorders continued throughout the country in April, May, and June. There were strikes and riots at Stettin, Lübeck and

Breslau. There were serious disturbances in Essen and throughout Westphalia. In the mines of the Ruhr Basin over 350,000 strikers left the mines demanding increased wages and a six-hour day, release of political prisoners and the recall of government troops. Vigorous attempts to set up Spartacide governments were made in Munich, Hamburg, Magdeburg, Bremen, Brunswick, Düsseldorf, and other places. The revolt at Munich was put down (see below) and the suppression of disorders followed in other parts of Germany. The riots in Baden, Brunswick, Dresden, and other centres were to some extent quieted by the threat of Director-General Hoover to cut off food supplies. At the beginning of April the outlook was still dark as regards Bolshevism which was said to be working by means of propaganda and by strikes for the immediate purpose of paralyzing industry. The Spartacides were trying to get control of the localities by setting up Soviets in the towns and villages. The Soldiers', Workmen's, and Peasants' Councils formed a congress which met in Berlin April 7th and constituted the following parties: Majority Socialists, 138; Independent Socialists including Austrians, 55; Democrats, 12; Peasants' League Members, 3; and Communists, 3. Little was accomplished on account of the rivalry between groups. A general strike broke out in Berlin, the workmen demanding a voice in the management of industry, and it was settled on April 19th by a virtual admission of their claims.

THE ASSASSINATION OF EISNER: BAVARIAN DISORDERS. On February 21st, it was announced that the Prime Minister of Bavaria who, since the revolution of 1918, had held the position of virtual dictator, had been assassinated by an army officer, Count Arco Valley. (See EISNER, KURT.) The murder was attributed to the well known separatist policy of the Bavarian Premier who had violently attacked Prussia, and who, in November, 1918, had broken off relations with Berlin. According to a Berlin newspaper, the characteristic of the Bavarian revolution from the first had been its aversion toward the idea of the empire, and its hatred for the symbol of national unity, the red, white, and black flag. On April 6th a Soviet republic was declared in Munich as a result of the Bavarian hatred of Prussia and opposition to the National Assembly. It was immediately followed by the declaration that all property in the community was socialized but it lasted for only a brief time. The Prime Minister, Hoffmann, after an attempt to suppress the extremists, appealed for aid to the central government, which, through President Ebert, replied on April 21st by sending 30,000 troops under the command of Noske, and the Soviet government fell immediately. The revolts in Bavaria were estimated to have caused property losses amounting to \$62,500,000.

NATIONAL ASSEMBLY. The National Assembly opened at Weimar on February 6th. The government was much alarmed by demonstrations of the Spartacides and took elaborate precautions to preserve her order. At its opening meeting Herr Ebert made a speech in which he protested vigorously against the terms of the armistice, warning the Allies not to try his countrymen beyond the limit of endurance. He demanded the union of Germany and Austria, and asserted the right of Germany to take its place in the League of Nations. A working

agreement on the part of the Majority Socialists, Democrats, and Centre party was worked out, and the coalition cabinet representing these three parties in proportion to their numerical importance was planned. There was a tendency on the part of the leaders to decline responsibility if the terms of the Allies were too hard. The question of the draft of the constitution came up early in the session, and also the plan for a provisional constitution ending in the adoption of the final instrument.

The provisional constitution gave the Assembly power to adopt a permanent constitution; to enact such laws as were urgently needed; to choose the President by majority vote; and to form a committee of state which would serve in part as a second chamber. It provided also that the territory of the German states should not be changed without their consent. On February 11th the election of the provisional president gave Ebert 277 out of a total of 397 votes. The opposing candidates were the Monarchist Count Von Powadowsky-Wehner, who received 49 votes, and Scheidemann and Erzberger who received one vote each. The new President's first act was to ask Scheidemann to form a ministry, and a coalition cabinet was created as follows: Socialists, 7; Democrats, 3; Centrists, 3; and Nationalist, 1. The new Chancellor, Scheidemann, appointed as Minister of Economics, Dr. August Mueller; as Minister of Labor, Bauer; and as Minister of National Defense and Justice, Landsberg. Dr. David having resigned, Fehrenbach became president of the Assembly. Other members of the cabinet were Erzberger, who entered the government without portfolio, and Count von Brockdorff-Rantzau, who succeeded Dr. Solf in the foreign office. One of the first matters to come up before the new government was the armistice terms and its decision to sign them led to the immediate resignation of Count von Brockdorff who was opposed to them, but after receiving from the government guarantees that the armistice commission would be more directly under the control of the foreign office he consented to remain in his position. For the constitution as finally adopted, see above under *Government*.

RELATIONS WITH THE ALLIES. The German peace delegates were preparing to go to the conference at the end of March. Meanwhile the question of feeding Germany had been widely discussed among the Allies, and fear had been expressed that the governments intended to supply food at their own expense, but on March 13th it was announced by a representative of the Peace Conference that the needs of the Allies and of the new states in eastern and south eastern Europe would be met before Germany was provisioned. On March 17th it was reported that Germany had accepted the Allied terms in regard to the supply of food, and handing over her shipping amounting to about 3,500,000 tons. She was to receive 300,000 tons of cereals and 70,000 tons of fats per month, and payment for the food-stuffs was to be made by the freight of German ships used for Allied purposes, by certain exports which were permitted, and by credits in neutral countries. Germany was to deposit £18,000,000 in the National Bank of Belgium, which was to be regarded as a guarantee. In Socialist quarters the rejection of the Allied peace terms was discussed, and it was said that Germany had new weapons of defense if the

Allies pushed her to extremities. It was evident that in certain political circles the refusal of the terms would be welcomed. See **WAR OF THE NATIONS**.

THE PEACE TERMS. Field-Marshal von Hindenburg resigned May 2d, the resignation to go into effect upon the conclusion of peace. On May 7th a draft of the peace treaty was handed to the German peace delegation. They had been required to appoint delegates who were responsible and could speak with authority and they chose finally the following: Count von Brockdorff-Rantzau, Foreign Minister; Herr Landsberg, Minister of Justice; Dr. Melchior, general manager of the Warburg Bank; Herr Leinert, president of the Prussian Assembly; Herr Giesberts, Minister of Posts and Telegraphs; and Herr Scheuecking. Along with them went many experts in the fields of industry, finance, and labor, as well as professional and business men. The peace terms caused a storm of protest throughout the country and united all parties in condemnation of it. It was remarked by President Ebert that history held no precedent for such determination to annihilate a vanquished people. The point of view of the Socialists was briefly expressed in the Socialists paper *Vorwärts*, which said that the two conquered parties in the war were the German people and the American idea. The Liberal leader and editor Theodor Wolff declared that the treaty ought not to be signed. The moderate Prince Lichnowsky who had incurred the hatred of the imperial government by his revelations of its pre-war policy called it a piece of violence which would destroy Germany; the Liberal, Erzberger, said it was not only unacceptable but impossible to fulfill, and the well-known publicist, Delbrück, threatened to open the gates to Bolshevism rather than sign. The government through its delegates made extreme efforts to secure changes in the severe terms of the treaty. Finally on June 16th the peace treaty as completed was handed to the delegates. Immediately there was a crisis in the government which caused a different grouping of parties. In the first place the Foreign Minister, Rantzau, refused to sign unless radical changes were made and in this attitude Scheidemann, Giesberts, Landsberg, and Dernberg shared, while Noske, Erzberger, and David favored acceptance. The parties were divided by the issue. The Majority Socialists stood 75 to 30 in its favor; the Democrats, 5 opposed and 8 in favor; the Centrists, 69 in favor of conditional acceptance and 4 in favor of unconditional acceptance. Thereupon (June 21st) the Scheidemann cabinet resigned and was succeeded by another coalition government pledged to the acceptance of the treaty. The Prime Minister was Dr. Gustave Bauer, Socialist, former Minister of Labor, and the other members were as follows: Dr. Herman Müller, Majority Socialist leader, Foreign Affairs; Erzberger, Vice-Premier; Dr. David, Interior; Herr Wissell, Economics; Herr Schilke, Labor; Herr Meyer, Finance; Herr Giesberts, Posts and Telegraphs; Dr. Paul, Colonies; Noske, National Defense; and Dr. Robert Schmidt, Food. On June 22d a resolution offered by Haase to the effect that the National Assembly agree to sign the treaty was passed by a vote of 237 to 138, the Prime Minister having informed the Assembly of the Ministry's intention to sign. The reactionary press made severe at-

tacks upon the government for its action, but on July 9th the treaty was ratified by a vote of 208 to 115 (99 Deputies not voting). After the ratification the government applied itself to the question of economic restoration and to the carrying out of the terms of the treaty in regard to Poland.

DISORDERS IN THE SUMMER TIME. In May and June during and after the discussion of ratification there were conflicts in West Prussia and Silesia, where the German element showed a spirit of resistance against the Polish occupation and there was trouble also in other parts of the eastern provinces. Moreover in the west much anxiety was caused by the movement to separate the Rhenish provinces and set up a republic of the Rhine. This took the form on June 1st of a declaration of independence and a provisional government was set up at Wiesbaden under the protection of French troops, but the plan soon failed on account of the lack of support from the German population and the German troops drove the self-appointed republicans from office.

RELATIONS WITH RUSSIA. German policy appeared to be directed toward an eventual economic accord with Russia, whichever side should triumph. While the army of von der Goltz was operating on the anti-Bolshevist side in Courland, the German government was said to be maintaining as far as possible relations with the Moscow government of the Soviets. From the point of view of the military party the restoration of the old system in Russia was desirable as involving the return of the Hohenzollerns in Germany. Their plan was to seize in the East the power that had been lost in the West. From all points of view the economic development by German capital of the colonization of Russia offered immense opportunities, for the country was an inexhaustible reservoir of food, raw materials, etc., and afforded an enormous market for the products of German industry. According to a German pamphleteer it should be the aim of Germany to bring Russia to purchase all the manufactured articles that it needed from a pin to an automobile. It was said to be a part of the German plan to send large bodies of engineers, foremen, and workmen, into Russia. By these means Germany would rid herself of her unemployed workmen and her excess of population, turning toward the East the emigration that had previously been directed toward America. A campaign of education was carried on in Germany to familiarize citizens with Russian resources, and the advantages of colonization. Companies were founded to raise capital for the purchase of wide tracts of Russian land, to be distributed among the disbanded German soldiers. German pioneers had multiplied in certain parts of Russia, especially in the Ukraine, in Crimea, and along the banks of the Volga before 1914, and these regions offered good opportunities at the present time. The German colonists were said to have kept their language, schools, churches, and other German institutions. An "Institute of Eastern Europe" was founded in connection with the University of Breslau as a sort of central office for the instruction of possible colonists, and it was distributing in 1919 large numbers of pamphlets on conditions of emigration, on the mines of the Donetz, the oil wells of Baku, the resources of Siberia, etc. Similar institutions existed at

Stuttgart under the title of an "Institution of German Expansion Abroad," and published information on the Baltic countries. A plan was formed at Berlin for a ministry of emigration which would dispatch to Russia and other countries consuls and other officers who would promote and supervise German penetration abroad. Several periodicals were devoted to these purposes. The institute at Breslau submitted a bill to the government making it obligatory in all the Prussian schools to study the Russian language. Courses in Russian were given at Berlin, and the libraries were provided with large numbers of Russian dictionaries, grammars, manuals, etc. In short, the Germans seemed to be aiming at the eventual colonization of Russia whether or not the country passed under a different régime. The Moscow government was said to be maintaining agents at Berlin. Workingmen out of employment who had perhaps been influenced by propaganda of these agents were demanding the immediate resumption of commercial relations between Germany and the Russian Soviet government. It was reported in October that a Bolshevik delegation had arrived in Germany for the purpose of organizing bureaus of emigration, and of recruiting some 800,000 of the unemployed to be sent to Russia for supplementing the man power in its industries.

SITUATION AT THE CLOSE OF THE YEAR. The immediate future of the government seemed uncertain. There were signs that it could not last long. The parties of the Right were constantly stirring up public opinion in order to influence the elections and they predicted that the present government would be overthrown. The danger of such an event was that a dictatorship would succeed and that this again would give place to a return of the Hohenzollerns. The Polish danger was another feature of the situation. Germans considered themselves as far superior to the Poles as the English to the Zulus, that is to say, superior not only in race but in intellect. According to some observers Germany was tending toward a union under Prussia. Even if the Hohenzollerns were brought back there would certainly be none of the secondary dynasties. It was said that the Assembly was no longer German and that the southern states like Bavaria were renouncing their system of taxes and all independent administration. In that case there would be a German king. After the present government should be overthrown there would be a foreign policy inspired by the same motives as before the war and it would have behind it a powerful army. This point of view was that of the conservative or reactionary element in Germany and those who particularly feared this element abroad.

Observers declared at the close of the year that the government whether it wished or not was gradually falling under the control of the Left. The workingmen had become three times as numerous as they were before the war and had lost the habit of steady work, passing their time in political discussion and in criticism of the authorities. The Socialist newspaper *Vorwärts* declared that the celebrated talent of Germany for organization had been destroyed by the absurd system which prevailed. The administration was divided against itself and fell into long discussions which led to nothing. One

of the government organs had declared that the only way to put things in order was to set up a dictatorship. Socialist newspapers were predicting the break-down of the present coalition and accusing the Democrats of being at bottom just as reactionary as the bourgeois parties. They said it would be a wise policy to separate from them. Bad conditions prevailed on the railways. The government suspended the passenger service in order that freight trains might circulate freely but an attempt to carry this out was blocked by the inefficiency or ill-will of the officials. The new ministry of railroads was unsympathetic with the plan and hindered its execution. It was reported that in all parts of the country the lines were functioning badly. At the close of the year an alliance of Socialist groups was proposed and an association was founded to bring about a Socialist *bloc*, which policy had the support of Scheidemann as a means of avoiding defeat in the coming elections. The Majority Socialists had in fact failed in its recent appeals to the people. In Upper Silesia they had lost seats everywhere and returned only a few candidates. The Poles and the Independents had profited in the campaign from the mistakes of the government administrator in dealing with the strikers in August. It was reported that the Majority Socialists realizing their weakness and desiring to retain power at any cost were ready to make terms with the Independents and even with the Communists. For example the association above mentioned known as the League of Socialist Union issued toward the close of the year a pamphlet pointing the way to a reconciliation of the Socialist groups and as the first condition it demanded dissolution of the imperial troops and the substitution for them of a popular guard, which should suppress counter-revolutions and which should have a democratic basis, nominating its own officers and not living under barrack discipline—in short a sort of red guard composed of the working classes. Noske had caused the book to be seized upon its publication but immediately afterwards Scheidemann had made the same proposal in regard to the army. Thus it appeared that the elements hostile to Noske and to his policies in respect to the police and the military were uniting. The situation of the German republic was even compared to that of the Kerensky government in Russia just before its downfall. There was not much faith to be placed in the elections, according to some authorities, for the reason that the revolutionary element had become so strong that unless the elections conformed to their wishes they would at once proceed to violent measures and declare a general strike or try to stir up a revolt. If, however, the present government should maintain the army on its present footing and the civil guards in the country districts, it might be able to resist such a movement. Hence the desire of the extreme Socialists to destroy the present military and police system. The above account represents the point of view of the moderate element in Germany, many of whom believed that the danger of extreme radicalism had not passed but that there were serious troubles ahead.

ATTITUDE OF THE INTELLECTUALS. A significant manifesto was issued in the beginning of the year by 70 professors of the University of Heidelberg, which illustrated the point of view of the

strong element that feared the government was acting counter to the national interests. It declared that the publication of documents purporting to prove the guilt of the imperial government was a suicidal policy, for the enemies of Germany would never publish documents on their side showing responsibility for the war, and they would justify themselves by what the Germans admitted for a policy of severe chastisement. They demanded that there should immediately and constantly be published conclusive proofs charging the chief responsibilities for the war against the enemy, as for example, the political encirclement of Germany; the Russian mobilization as the direct cause of the war, according to the revelations at the trial of Soukhomlinov; and finally, the vengeful spirit of France as illustrated by the accusations of Jaurès. They declared it should be proved to the world and to President Wilson in particular that France in her spirit of conquest had possessed herself of territory that was purely German and would forever be an inseparable part of the German Empire. The manifesto concluded as follows: "In the face of the violence employed against them, which assumed the rôle of an avenging justice, the Germans have no more urgent duty than to prove to the world constantly that their enemies are responsible for the war and are impelled by the motive of conquest. As to our people which to-day is concerned exclusively with its internal affairs, its governors must never weary of assuring it that it is threatened from without by the gravest danger to its existence and to its future, in order that it may lay aside its internal quarrels which in the long run expose the country to the risk of further dismemberment. To offset this it should organize a new grouping of the intellectual elements." See WAR OF THE NATIONS; UNEMPLOYMENT; ARBITRATION AND CONCILIATION, INDUSTRIAL; TRADE UNIONS; EXPOSITIONS; etc.

GIBRALTAR. The narrow peninsula on the southwest coast of Spain, commanding the entrance to the Mediterranean. The Rock of Gibraltar is a British crown colony. Area, 17½ square miles; fixed population, estimated Jan. 1, 1918, 16,549 (8105 males and 8444 females), comprising for the most part descendants of Spanish and Italian settlers; alien population, about 10,400. Gibraltar is an important naval base and coaling station. Revenue (1917), £125,876; expenditure, £119,636; total tonnage entered, 9,711,227 (British, 3,955,979); cleared, 9,382,234 (British, 3,791,195). The customs revenue in 1917 was £45,951. Governor at the beginning of 1919, Gen. Sir Horace L. Smith-Dorrien.

GIBSON, H. GRAEME. British physician, known as one of the discoverers of the germ of the Spanish influenza, died at Abbéville, France, in November. For a long time past he had been working along with others to isolate the influenza germ. On Dec. 14, 1918, a preliminary statement was published by him and his colleagues, but the work was not then complete. At the time of his death the work was reported to have been successfully finished.

GILBOA. See DAMS.

GIRLS' CLUB WORK. See AGRICULTURAL EXTENSION WORK.

GLASS. See CHEMISTRY, INDUSTRIAL.

GOLD. The production of gold suffered a further decline in 1919, though when the YEAR

Book went to press no authoritative and complete estimates for the year were available. The reasons for the decreased output obviously were the fixed price of the product and the rising costs ranging from labor to supplies. In fact it was possible to work only the richer deposits unless silver was also secured, and there were stories during the year of dredging plants being dismantled and shipped to localities where they could be operated with hope of greater return. The inflation in the currency systems of the world naturally had its effect on the demand and movement of gold, which was restricted by the extraordinary conditions following the war.

The production of gold in the United States in 1919 was estimated at 2,829,395 fine ounces, valued at \$58,488,800, or as the accompanying table shows, a decline of \$10,157,900 in value from 1918. California was the only State of the union showing increased production in 1919.

GOLD PRODUCTION OF UNITED STATES, 1918 AND 1919

ESTIMATES OF THE U. S. MINT AND U. S. GEOLOGICAL
SURVEY

(Figures for 1919 preliminary statistics subject to
revision)

	1918	1919
Alabama	\$700	\$700
Alaska	9,424,700	\$9,036,300
Arizona	5,583,000	4,176,500
California	16,784,400	17,389,000
Colorado	12,724,700	9,736,400
Georgia	4,500	1,000
Idaho	701,400	710,400
Maine	700	100
Missouri	60	100
Montana	3,280,700	2,461,700
Nevada	6,700,440	4,754,600
New Mexico	687,080	595,700
North Carolina	4,400	1,000
Oregon	1,265,700	1,071,800
South Carolina		100
South Dakota	6,699,400	5,267,600
Tennessee	5,600	5,300
Texas	20	1,100
Utah	3,153,000	2,152,700
Vermont	1,000	200
Virginia	400	.....
Washington	333,800	309,800
Wyoming	900	300
Continental U. S.	\$67,356,600	\$57,662,700
Philippines	1,290,000	826,100
Porto Rico	100	.....
Total	\$68,646,700	\$58,488,800

In the calendar year 1919 the exports of gold from the United States amounted to \$368,144,000 while the imports were \$76,534,000, or an excess of exports of \$291,610,000. In 1918 there was an excess of imports of \$20,972,000, the imports totaling \$62,042,000, while the exports were \$41,972,000. Exports of gold were to the Orient and to South America. For example, in November, 1919, the exports ran as follows:

Argentina	\$8,900,000	Spain	650,000
China	1,786,420	All other	7,686,405
India	3,953,780		
Hongkong	5,362,790	Total	\$51,857,796
Japan	23,518,395		

The decreased gold production in the United States found its counterpart elsewhere in the world on account of practically the same conditions. In British Columbia there was an estimated decline from 180,674 ounces in 1918 to 150,050 in 1919; in the Transvaal from an out-

put valued at £35,768,688 in 1918 to a value of £35,557,507 in 1919; in Australia from 1,277,953 fine ounces in 1918 to 1,141,541 in 1919; in New Zealand from 189,159 fine ounces in 1918 to 180,000 in 1919. In Rhodesia the output was larger for 10 months, amounting to £2,154,203, as compared with £2,652,250 for the year 1918 and £3,495,391 for the year 1917.

In the generally unsettled condition of the world, preliminary statistics were of comparatively little value and accordingly attention is directed to the accompanying figures of gold production by countries for 1918 and two earlier years and for the total production for 20 years ended 1918, the figures, except as otherwise noted, being those of the *Engineering and Mining Journal* of New York. See METALLURGY; SILVER.

GOLD PRODUCTION OF THE WORLD ^a

	1916	1917	1918
United States.	\$92,590,300	\$83,750,700	\$68,646,700
Canada	19,235,000	15,273,000	14,687,900
Mexico	7,690,700	9,000,000	16,824,700
Russia	22,500,000	18,000,000	12,000,000
India	11,206,500	10,812,800	10,028,200
South Africa.	192,182,900	186,426,600	174,023,300
South America	15,188,400	13,924,600	12,795,900
Australasia ...	40,475,800	34,398,100	29,268,600
All other coun- tries ...	53,106,900	47,836,300	42,640,400
Totals	\$454,176,500	\$419,422,100	\$380,924,700

^a Figures from the Director of the Mint.

GOLD PRODUCTION OF THE WORLD FOR 20 YEARS

1899	\$311,505,947	1909	\$459,927,482
1900	258,829,703	1910	454,213,649
1901	260,877,429	1911	459,377,300
1902	298,812,493	1912	474,333,268
1903	329,475,401	1913	462,669,558
1904	349,088,293	1914	451,582,129
1905	378,411,754	1915	473,124,590
1906	405,551,022	1916	^a 454,176,500
1907	411,294,458	1917	^a 419,422,100
1908	443,434,527	1918	380,924,700

^a As reported by the Director of the Mint.

As already indicated figures are now at hand showing a drop occurred in the gold output in the Transvaal, South Africa, during 1919, in which year 8,330,091 ounces of gold were produced, against 8,418,292 ounces in 1918, a decrease of 88,200 ounces. Annual gold output from this, the most important gold area in the world, dropped almost 1,000,000 ounces in the past three years as the following shows:

Gold production in South Africa in the year 1915, 9,093,902 fine ounces; 1916, 9,298,618; 1917, 9,018,084; 1918, 8,418,292; 1919, 8,330,091.

Although the decrease in 1919 was not as marked as that of 1918 over 1917, it showed the general world-wide curtailment of gold production.

Gold production in Australia also showed a marked decrease, and for the first 10 months of 1919 amounted to 914,957 ounces, against 1,073,617 ounces for a similar period in 1918.

In a statement issued by the U. S. Bureau of Mines it was recorded that ever since June 7th, when the embargo on the export of gold was lifted, there has been steady and heavy outflow of gold from this country, as a consequence of which considerable gold accumulated during the war has been exported. It will be noted from June 1, 1919, to Jan. 1, 1920, the decrease has been nearly \$305,000,000, which is over one quar-

ter of the \$1,200,000,000 in gold gained during the war. The shipments of gold will tend to stabilize the value of the dollar in those countries in which the balance of trade is unfavorable to the United States.

From Aug. 1, 1914, to Dec. 31, 1918, or particularly during the period of the war, the excess of imports of gold over exports totaled \$1,234,835,000, while the year 1919 showed a movement in the other direction of an excess of exports over imports amounting to \$292,151,000.

GOLD COAST. A British colony on the Gulf of Guinea extending for 334 miles along the coast and comprising besides the colony, a protectorate, and Ashanti. Total area, about 80,000 square miles; population since 1911, 1,503,386, of whom the Europeans in 1915 numbered 2206. The capital and chief town is Accra (19,585) and other large towns are Cape Coast Castle (11,364); Secondee (7725). The following table shows the imports and exports, revenue and expenditures for 1914 to 1917 inclusive:

	1914 £	1915 £	1916 £	1917 £
Imports *...	4,456,968	4,509,538	5,999,749	3,386,480
Exports *...	4,942,656	6,948,631	5,816,527	6,346,925
Revenue....	1,381,713	1,456,130	1,835,989	1,624,124
Expend....	1,755,850	1,627,015	1,465,946	1,424,279

* Including bullion and specie.

The overseas trade in 1918 was less than that of any previous year of the war or any year immediately preceding the war. The chief articles of import were cotton goods, machinery, soap, distilled spirits, clothing, building materials, and provisions. The United Kingdom supplied 73 per cent of the imports and the United States 21 per cent. The total value of imports was \$14,208,306. The exports included palm kernels, palm oil, kola nuts, cocoa, rubber, and copra. The three last-named decreased in 1918 on account of the difficulty of obtaining shipping space. The United Kingdom received 47 per cent of the exports as comparing with 65 per cent in 1917 and the United States received 37 per cent as comparing with 18 per cent in 1917. A notable feature of the year 1919 was the discovery of diamonds in the region about Abomo Su in February. The condition of the gravel in which they were found indicated that they were derived from a granite pegmatite area.

The northern territories lie to the east and south of the French possessions and to the west of Togo. Their population is variously estimated and may be given as about 360,000.

GOLF. All the golf championship tournaments were held in the United States in 1919 for the first time in three years. Among the professional players to distinguish themselves were Walter C. Hagen and James Barnes, while the leading amateurs were S. Davidson Herron, Charles Evans, Francis Ouimet and Robert T. Jones, Jr. Hagen captured the open and Metropolitan titles, while Barnes triumphed in the Western, Southern and professional tourneys. Herron won the amateur fixture and to Evans went the honor of leading all the amateurs in the open championship.

Ouimet finished second among the amateurs in the open tournament and defeated Evans in the amateur championship. Jones was the runner-up in the amateur tourney, tied for second place with Barnes in the Canadian open and

finished second to Barnes in the Southern open.

The results of the various championship tournaments held during the year follow:

United States Open Championship played at Boston won by Walter C. Hagen of Detroit after a play-off with M. J. Brady of Watertown, Mass., both having a score of 301.

United States Amateur Championship played at Oakmont C. C., Pittsburgh, Pa., won by S. Davidson Herron of Pittsburgh, who defeated Robert T. Jones, Jr., of Atlanta, 5 and 4.

United States Women's Championship played at Shawnee-on-Delaware, Pa., won by Miss Alexa W. Stirling of Atlanta, who defeated Mrs. W. A. Gavin of Bay Shore, L. I., 6 and 5.

Western Open Championship played at Cleveland, Ohio, won by James Barnes with 283, Leo Diegel, runner-up with 286.

Professional Golfers' Association Championship played at Roslyn, L. I., won by James Barnes, who defeated Fred McLeod, 6 and 5.

Southern Amateur Championship played at New Orleans, La., won by Nelson Whitney, who defeated Louis Jacoby, 12 and 11.

Southern Open Championship played at Atlanta, won by James Barnes with 293, runner-up Robert T. Jones, Jr., with 294.

Metropolitan Association Amateur Tournament won by Oswald Kirkby, who defeated A. L. Walker, Jr., 2 and 1.

Metropolitan Association Open Tournament won by Walter C. Hagen with 294, runner-up, E. French with 297.

The New York team was victorious in the Griscom Cup matches, defeating Philadelphia by 12 matches to 3 and Boston by 13 matches to 2. In the Lesley Cup matches Pennsylvania defeated New York 9 to 6 and Boston 10 to 5. Princeton University won the inter-collegiate championship with Harvard second and Yale third. The individual honors went to A. L. Walker, Jr., of Columbia University.

The Allied Team Championship played at La Boule, near Versailles, France, was won by the French who defeated the Americans in the final round by 8 to 4. Sergeant W. Rautenbush captured the A. E. F. championship at Nice, where he defeated Lieut. J. W. Hubbell 6 and 5.

GOODWIN, NATHANIEL CARL. American actor, better known as NAT GOODWIN, died in New York City on January 31st. He was born at Boston, July 25, 1857, educated at public and private schools, and made his appearance with Stuart Robson in Boston, in 1873. Thenceforth he appeared frequently in comedy parts, and after 1890 starred in some of the most successful light pieces of the time. He had a marked gift as a comedian and was long a public favorite. Though versatile in comedy parts, he was not especially successful in more serious undertakings, although he appeared with credit even in Shakespearian drama. Aside from his professional reputation he was a marked figure, and the subject of much humorous discussion, on account of his frequent marriages and divorces—an eminence which he himself recognized by the publication of a book entitled *Why Beautiful Women Marry Nat Goodwin*. He was married five times and divorced four times, and was about to be married the sixth time when he was taken with his last illness. Among his successive wives may be mentioned: Maxine Elliott; Edna Goodrich; Marjorie Moreland. He visited England several times, but his ap-

pearance there on the last occasion in 1906 was unsuccessful. Space is lacking for mention here of all the plays in which he made a notable success. The following list represents only a small portion of the productions in which he appeared: *Black Eyed Susan*; *Rice's Evangeline*; *Hobbies*; *The Member from Slocum*; *In Mizzoura*; *Nathan Hale*; *The Skating Rink*; *Cruets*; *Confusion*; *Turned Up*; *A Gilded Fool*; *David Garrick*; *The Rivals*; *An American Citizen*; *The Cowboy and the Lady* (1899); and *When We Were Twenty-One* (1900). He also played Shylock, in *The Merchant of Venice* (1901); appeared in *The Altar of Friendship* (1902); *The Usurper* (1903); played Bottom, in *A Midsummer Night's Dream* (1904); starred in *The Beauty and the Barge* (1905); *Wolfville*, and *The Genius* (1906); *What Would a Gentleman Do*; *The Master Hand*; and *The Easterner* (1908-09).

GORIZIA. The Italian name of Görz, capital of the former crownland of Austria, Görz and Gradisca (q.v.).

GÖRZ AND GRADISCA. Before the dissolution of the Austro-Hungarian Empire, a crownland of Austria. For statistics, see preceding YEAR BOOKS. It was part of the territory formed after October, 1918, into the new state of Jugo-Slavia (q.v.).

GOUCHER COLLEGE. A non-sectarian institution for the education of women, founded in 1885 at Baltimore, Md. The enrollment in the fall of 1919 was 790, with 74 members of the faculty, 28 of whom were appointed in 1919. The library contained 35,000 volumes. The college had an endowment of \$1,200,000; the income for the year was \$187,000. President, William Westley Guth, S.T.B., Ph.D.

GOVERNMENT OWNERSHIP. See RAILWAYS.

GRANT, SIR ALFRED HAMILTON. Representative of British India at the Paris Peace Conference. He had seen service during many years in the Punjab and the northwest frontier provinces, and was made foreign secretary to the government of India in March, 1915.

GRAPHITE. The quantity of domestic crystalline graphite marketed in 1918, according to the final figures compiled by the United States Geological Survey, was 12,861,839 pounds valued at \$1,454,799 compared with 10,564,080 pounds valued at \$1,074,398 in 1917. Alabama lead production with 7,795,475 pounds of a value of \$999,152; New York produced 3,266,518 pounds valued at \$273,188; Pennsylvania sold 1,016,900 pounds for \$112,059; while California, Montana, and Texas, combined, contributed 782,946 pounds of a value of \$70,400.

Amorphous graphite to the amount of 6560 short tons, valued at \$69,455, was sold from mines in Colorado, Nevada, and Rhode Island during 1918. The output of amorphous graphite in 1917 was 8301 short tons, valued at \$73,481.

GRAVES, HERBERT C. Hydrographer, died in London on July 26th. He was born in 1860 and he was representing the United States after June 12, 1919, at the International Hydrographic Conference and one of the delegates also from the American section of the proposed International Geophysical Union which met in Brussels in July. He had been in charge of the coast surveys under the Coast and Geodetic Survey.

GREAT BRITAIN. THE UNITED KINGDOM OF GREAT BRITAIN AND IRELAND is a constitutional monarchy whose capital is London. Although

the term Great Britain applies literally only to England, Scotland and Wales it is often used as above to mean the United Kingdom. Attached to the United Kingdom are the Isle of Man and the Channel Islands. The United Kingdom and its possessions or dependencies, that is to say the dominions and colonies, and other territories subject to the ultimate control of Parliament constitute the British Empire.

AREA AND POPULATION. The area of the United Kingdom is 121,331 square miles; including the Isle of Man and the Channel Islands, 121,633 square miles. The population of the United Kingdom as estimated for June 30, 1914, just before the outbreak of the war was 46,089,249 of whom 36,960,684 were in England and Wales, 4,747,167 in Scotland, and 4,381,398 in Ireland. The civil population for England and Wales was estimated for June 30, 1918 at 33,474,700 and the population of Scotland and Ireland, respectively, at 14,886,300, and 4,337,000. For details of population based on the 1911 census see preceding YEAR BOOKS. The estimated population of Greater London (about 693 square miles), in 1917, 6,726,753 (civil population only), for the administrative county of London, 4,026,901. The estimated population of the three next largest cities of England in 1917 (civil population only), was as follows: Birmingham, 870,271; Liverpool, 716,141; Manchester, 660,143. The estimated borough population of the two largest cities of Scotland in 1918 (civil population only), was as follows: Glasgow, 1,111,428; Edinburgh, 333,883. The estimated population of the two largest cities in 1917 of Ireland was: Dublin (registration area), 399,000; Belfast, 393,000. The movement of population in England and Wales for 1918 (provisional figures), was as follows: Total births, 662,773; deaths, 611,991; marriages, 286,807. For Scotland in 1918 it was: Total births, 98,550; deaths, 78,359; marriages, 34,594. For Ireland in 1918 it was: Total births 87,563; deaths, 78,685. In 1916 the total emigration was 93,889 and the total immigration 98,583. The destination of the emigrants was mainly the United States and North America.

EDUCATION. On July 31, 1917, the number of elementary schools in England and Wales was 21,464 and the number of pupils enrolled on Jan. 31, 1917 was 5,979,889. The average attendance in 1916-1917 was 5,299,000. In Scotland the elementary schools in receipt of grants in 1917 was 3363 with 743,725 in attendance. In Ireland in 1917 the elementary schools numbered 8060 with 699,472 pupils enrolled and 488,785 in attendance. The attendance at the universities was greatly diminished as a result of the war. The following table published by the *Statesman's Year Book* for 1919, estimates the number on teaching staffs and the number of students in the universities of the United Kingdom in 1918-19:

Universities	No. of Professors, &c.	No. of Pupils
England—		
Oxford	100	1,500
Cambridge	134	1,700
Durham	132	950
London	1,140	3,300
Manchester	270	1,480
Birmingham	100	900
Liverpool	185	1,200
Leeds	151	1,110

<i>Universities</i>	<i>No. of Professors, &c.</i>	<i>No. of Pupils</i>
Sheffield	141	1,900
Bristol	210	700
Total for England	2,563	15,640
Scotland—		
St. Andrews	84	420
Glasgow	126	2,350
Aberdeen	82	880
Edinburgh	200	2,570
Total for Scotland	492	6,220
Ireland—		
Dublin (Trinity College)	76	850
Dublin (National)	200	1,400
Belfast	72	810
Total for Ireland	348	3,010
Wales	152	1,500
Totals of above	3,555	26,870

Very important changes were made in the educational system by the Fisher Educational Bill, which was introduced early in 1918 and became a law on Aug. 7, 1918. This raised the elementary school age to 14 years; required attendance at continuation schools from 14 to 16 until 1925, and from 14 to 18 thereafter; forbade wage labor for children under 12; limited the employment of children between 12 and 14 to two hours on Sundays and school-days, and forbade employment before 6 A.M. or after 8 P.M., gave local authorities power to provide holiday or camp schools and physical training centres, which were to be subsidized by the State; provided for medical treatment of school children to be paid by the State and for special schools for defectives, and abolished all fees in public elementary schools.

PRODUCTION. The following table from the *Statesman's Year Book* for 1919 shows the number and size of the holdings in Great Britain in 1918.

<i>Size of Holdings</i>	<i>Great Britain</i>
1-5 acres	100,792
5-50 acres	224,710
50-300 acres	153,918
Over 300 acres	16,688
Total	496,108

The following table shows the number and size of holdings in Ireland in 1917.

<i>Size of holdings</i>	<i>Leinster</i>	<i>Munster</i>	<i>Ulster</i>	<i>Connaught</i>	<i>Total Ireland</i>
Not exceeding 1 acre	39,131	33,261	32,022	8,373	112,787
Above 1 and not exceeding 5 acres	13,085	9,678	16,387	8,469	47,619
Above 5 and not exceeding 10 acres	10,645	8,076	27,920	19,421	66,062
Above 10 and not exceeding 15 acres	8,211	7,062	25,072	19,411	59,756
Above 15 and not exceeding 30 acres	18,009	20,221	48,593	36,806	123,129
Above 30 and not exceeding 50 acres	13,268	20,494	24,555	14,071	72,388
Above 50 and not exceeding 100 acres	13,055	22,406	15,427	6,588	54,476
Above 100 and not exceeding 200 acres	6,889	9,789	4,112	2,369	23,159
Above 200 and not exceeding 500 acres	2,966	2,901	1,153	1,211	8,231
Above 500 acres	666	481	810	510	1,967
Total number of holdings	125,925	134,869	195,551	116,729	572,574

According to estimates in 1918, out of the total area (exclusive of water), of 76,640,000 acres, the arable land comprised 21,221,000 acres; the permanent pasture 25,046,000; the grazing land (mountain and heath), 13,151,000 acres. The principal "corn" crops are wheat,

barley, oats, rye, beans, and peas. The cultivated area of the United Kingdom in 1918 is shown in the following table.

<i>Cultivated area</i>	<i>1918 acres</i>
Corn crops	10,950,985
Green crops and flax	4,228,257
Hops	15,666
Small fruit	90,939
Bare fallow	414,124
Clover and mature grasses	5,520,796
Permanent pasture	25,045,981
Total	46,266,748

The live-stock in 1918 are shown in the following table.

<i>Live stock</i>	<i>1918 Number</i>
Horses	1,916,347
Cattle	12,811,149
Sheep	27,062,681
Pigs	2,809,215

The total produce of the United Kingdom by crops is shown in the following table in thousands of quarters and thousands of tons:

<i>United Kingdom</i>	<i>Wheat 1000 qtrs.</i>	<i>Barley 1000 qtrs.</i>	<i>Oats 1000 qtrs.</i>	<i>Beans 1000 qtrs.</i>	<i>Peas 1000 qtrs.</i>
1914	7,804	8,066	20,664	1,120	374
1915	9,240	5,862	22,308	924	800
1916	7,472	6,612	21,334	893	261
1917	8,041	7,185	26,021	474	278
1918	11,648	7,765	81,193	922	440

	<i>Potatoes 1000 tons</i>	<i>Turnips and Swedes 1000 tons</i>	<i>Mangold 1000 tons</i>	<i>Hay 1000 tons</i>
1914	7,476	24,195	9,523	12,403
1915	7,540	24,431	9,697	12,449
1916	5,469	23,318	9,010	15,198
1917	8,604	24,842	10,369	13,163
1918	9,223	22,835	10,321	12,331

The estimated yield of certain crops in England and Wales in 1919, with comparative figures for 1918, as given by the Board of Agriculture, is shown on the following page.

From the table it will be seen that the yield per acre of wheat was estimated at 28¼ bushels, or 4¼ bushels less than in 1918; while the to-

<i>Size of holdings</i>	<i>Leinster</i>	<i>Munster</i>	<i>Ulster</i>	<i>Connaught</i>	<i>Total Ireland</i>
Not exceeding 1 acre	39,131	33,261	32,022	8,373	112,787
Above 1 and not exceeding 5 acres	13,085	9,678	16,387	8,469	47,619
Above 5 and not exceeding 10 acres	10,645	8,076	27,920	19,421	66,062
Above 10 and not exceeding 15 acres	8,211	7,062	25,072	19,411	59,756
Above 15 and not exceeding 30 acres	18,009	20,221	48,593	36,806	123,129
Above 30 and not exceeding 50 acres	13,268	20,494	24,555	14,071	72,388
Above 50 and not exceeding 100 acres	13,055	22,406	15,427	6,588	54,476
Above 100 and not exceeding 200 acres	6,889	9,789	4,112	2,369	23,159
Above 200 and not exceeding 500 acres	2,966	2,901	1,153	1,211	8,231
Above 500 acres	666	481	810	510	1,967
Total number of holdings	125,925	134,869	195,551	116,729	572,574

tal production (from a smaller area) amounted to 7,979,000 quarters, which was a reduction of 2,500,000 quarters on the preceding year's total—the highest on record. Despite this decrease, however, and with the exception of 1915 it was the highest since 1898.

Crops	Estimated production		Area		Estimated yield		Average of the 10 years 1909-1918
	1918	1919	1918	1919	1918	1919	
	Quarters	Quarters	Acres	Acres	Bushels	Bushels	
Wheat	10,530,000	7,979,000	2,556,661	2,220,921	32.9	28.7	31.1
Barley	6,080,000	5,476,000	1,500,809	1,509,588	32.4	29.0	31.9
Oats	14,339,000	11,388,000	2,780,061	2,563,628	41.3	35.5	39.4
Mixed grain	620,000	623,000	139,077	142,423	35.7	35.0	...
Beans	889,000	854,000	242,097	273,841	29.4	24.9	27.6
Peas	439,000	441,000	127,857	132,212	27.5	26.7	24.8
	Tons	Tons			Cwt.	Cwt.	Cwt.
Seeds, hay &	2,098,000	1,770,000	1,446,504	1,500,983	29.0	23.6	28.9
Meadow hay b	4,688,000	3,425,000	4,298,498	4,170,616	21.8	16.4	22.3

a Hay from clover, sainfoin, and grasses under rotation. b Hay from permanent grass.

Barley produced 29 bushels to the acre, or 33% bushels less than in 1918. The total amounted to 5,476,000 quarters, or 600,000 quarters less than in 1918. With the exception of 1915 and 1916, this was the smallest crop since 1885, when official records were first kept.

The yield of oats, while showing a decrease of nearly 3,000,000 quarters when compared with 1918 (which constituted the highest total recorded), was, apart from that exception, the highest since 1907. The comparison with 1918, however, shows a decrease of nearly six bushels per acre. Mixed grain, or dredge, which received separate mention for the first time in 1918, showed a slight increase in the total production. While the area under beans was increased from 242,097 to 273,841 acres, the yield per acre was 4½ bushels less than in 1918. The total production of the hay crops amounted to 5,195,000 tons, which was the smallest since 1893, and approximately only three-fourths of the 1918 crop. While the area for seeds hay (clover, sainfoin, and grasses under rotation) was increased by about 55,000 acres, the yield was nearly 330,000 tons less than in 1918, the yield of 23½ hundredweight per acre being five hundredweight less than in 1918 and the lowest since 1896. Meadow hay, which yielded 16½ hundredweight per acre, was also five hundredweight below 1918, and the lowest since 1901. The acreage under hops was only 7 per cent greater than in 1918, but the yield was 50 per cent greater.

The total of all cattle was 6,195,000, a decrease of about 6000 since 1918. Farm horses showed an increase of 10,000 over 1918; cows in milk a total of 1,944,000, the largest on record, showing an increase of 85,000, or 4½ per cent over 1918. Sheep showed a decline of 8 per cent, the total being 15,123,000, the lowest on record. Breeding ewes declined by over 700,000 (11 per cent), and lambs by over 1,000,000, but older sheep increased by 400,000. Breeding sows totaled just over 250,000, a decline of 13 per cent, which is a little below the 1917 figures, the lowest on record. Other pigs, however, increased by 140,000 (10 per cent), and the total of all pigs was just under 1,800,000, or 6 per cent more than in 1918.

The quantity and value of fish taken from the waters of the United Kingdom in 1918, excluding shell fish, was 431,351 tons, valued at £21,019,100.

MINERAL PRODUCTS. In 1918 the amount of coal produced was 226,699,000 tons; iron ore produced in 1917, 714,845,734 tons. Other minerals of importance are lime-stone, salt, igneous rocks, clay and shale, oil shale, tin ore, etc.

The following information in regard to the effect of the coal strike on output (see below under *History*, and also **STRIKES AND LOCKOUTS**), was reprinted from a British source by the United States Bureau of Foreign and Domestic Commerce:

The effect of the strike on coal output may be gathered from the provisional figures relating to production in that week—2,871,610 tons, as compared with 4,481,434 tons in the preceding week. Thousands of workpeople in the great coal-using trades, such as the pig-iron blast furnaces and iron and steel manufacture, were thrown out of work. The engineering and textile trades were also seriously affected. Some measure of these results of the strike is afforded by the number of claims made under the emergency out-of-work donation scheme, which was in operation from October 1st to 13th. A record was kept of the number of current claims to donation and to unemployment-insurance benefits in Great Britain. On October 1st the number was 540,479; on October 2d, 600,039; on October 3d, 635,764; October 4th, 643,593; October 6th, 662,688; October 7th, 665,878; October 8th, 666,548; October 9th, 676,171; October 10th, 664,371; October 11th, 658,774. These figures compared with a total of 358,440 claims current at September 26th, the day before the strike began, except that this latter figure excludes a relatively small number of claims under the unemployment insurance acts. In addition, 85,000 workpeople were paid under the emergency scheme by their employers. In round numbers it may be taken that not less than 375,000 workpeople were unemployed for varying periods as a result of the railway strike, so far as claims in respect of unemployment are an indication. In addition to these, of course, a considerable number of workpeople were placed on short time.

The weekly returns from August 30th to September 27th throw some light on the effects of the reduction of the working day from eight hours to seven. The reduction came into operation on July 16th, and the output for the week ending July 19th showed a fall of 900,000 tons, as compared with the figure for the previous week. But this comparison is misleading, seeing that the shorter day began in midweek and that its beginning was attended by friction and stoppages in many districts. The returns from August 30th to September 27th represent the output of a more normal period. They give an average weekly output under the 7-hour day of 4,457,321 tons. By comparison with the average output under the 8-hour day from June 14th to July 12th of 4,767,127 tons, this is a fall of

309,806 tons a week, or just under 6.5 per cent.

LABOR CONDITIONS. The following information was supplied by the United States Bureau of Domestic Commerce at the close of the year: Returns issued on December 19th by the British Ministry of Labor disclosed the increasing extent to which wages had been advanced and the reduction that was taking place in the number of working hours. Alterations in the rates of wages which came into operation in November applied to 1,900,000 workpeople, whose weekly wage bill advanced by substantially £480,000 (\$2,335,900, at normal exchange) per week, or about £25,000,000 (\$121,662,500) annually. This increase, it should be noted, was the result of advances granted during the month of November only. During the first 11 months of 1919 5,250,000 of workpeople secured increases aggregating not far short of £2,000,000 (\$9,733,000) weekly, or practically £100,000,000 (\$486,650,000) per annum, the following groups of trades being affected:

Group of trades	Number of work-people	Net increase per week
Building	251,000	£166,000 (\$807,800)
Coal mining	1,110,000	587,000 (2,856,600)
Other mining and quarrying	53,000	27,900 (135,800)
Pig-iron manufacture	31,000	22,300 (108,500)
Iron and steel manufacture	118,000	80,800 (393,200)
Engineering and ship-building	1,329,000	352,800 (1,716,900)
Other metal	328,000	108,600 (528,500)
Textile	475,000	133,200 (648,200)
Clothing	384,000	98,800 (480,800)
Transport (excluding railroad)	262,000	56,600 (275,500)
Printing, paper, etc.	137,000	39,600 (192,700)
Woodworking and furniture	87,000	34,400 (167,400)
Glass, brick, pottery, chemical, etc.	178,000	44,700 (217,500)
Food, drink, and tobacco	174,000	46,600 (226,800)
Gas, electricity, and water supply	77,000	18,300 (89,100)
Other miscellaneous	190,000	53,600 (260,800)
Public utility services	159,000	37,700 (183,500)
Total	5,343,000	1,908,900 (9,289,600)

In November 30,000 workpeople had their hours of labor reduced on an average of three hours each, or 90,000 hours for the month. Changes effected in this respect during the first 11 months of 1919 aggregated 36,211,000 fewer working hours, the number of workpeople affected totaling 5,479,000. In respect to both higher wages and shortened hours of labor there was every prospect of a further expansion and contraction, respectively, in other trades as well as in some of those specifically named above.

WOMEN IN INDUSTRY. The War Cabinet committee on women in industry published its report early in the year. According to this, women occupied in July, 1914, that is, just before the war began, numbered 5,966,000, of whom 2,178,600 were engaged in industry proper and 1,658,000 in domestic service. Of those in industry proper 863,000 were in the textile trades and 612,000 in the clothing, these two groups being the only ones returned as employing more women than men. By July, 1918, the number of occupied women had risen to 7,311,000, an increase of 1,345,000, and the largest increase was in industry, namely, 792,000; whereas in domestic service there had been a decrease of 400,000. The services aside from industry proper which

engaged the greatest number were: Commerce, etc., comprising clerks, shop assistants, etc.; national and local government, including chiefly the civil service; various professional employments including naval, military, and allied services; and transport. The main increase in the industrial group took place in the metal trades and in government establishments. The percentage of women engaged in industry relatively to the total number of work-people rose from 26 per cent to 37 per cent. Down to January, 1918, it was estimated that 704,000 women had directly replaced men in industry. As to wages the pre-war average of women's wages was 13s 6d a week. The average after the war was not determined, but it was estimated that in the metal trades the rate had about doubled by the end of 1918, and the average earnings had about trebled. It was estimated that the average of women's earnings in the whole field of industry proper toward the end of the war was between 30 and 35 shillings a week.

COST OF LIVING. Early in the year important measures were taken to check the increasing cost of living and the policy pursued by the government seemed in the main successful. The chief danger from increased cost of living showed itself among the working class by whom it was believed to be mainly the result of profiteering. It was in fact the chief cause of their discontent. At the industrial conference at Westminster in March, Mr. Thomas, the general secretary of the railway workers, had declared that the purchasing power of the pound sterling was to-day only 10 shillings; in other words, that the cost of living had risen 100 per cent. The wages of the workmen, though they had increased considerably, had not risen in any such proportion. The chief problems before England during the war were, in the first place, the supply of food products, and in the second place, the distribution of this supply. Local production was insufficient and it was necessary to buy abroad, especially in America and the colonies, and to stimulate home production. England purchased abroad enormous quantities of preserved meat, cereals, sugar, etc., accepting all risks of loss by deterioration, or casualty at sea. At the same time she stimulated home production by fixing for a period of five years the maximum price for cereals, thus encouraging the farmers to raise large crops. The ministry of agriculture had the right of exploiting itself any farm that was insufficiently cultivated by its owners. Motor traction machines were introduced on a large scale. In thickly populated neighborhoods tracts of land were requisitioned and rented at a nominal price to men or women who would cultivate them. At the same time no effort was spared that would give these enterprises a patriotic character. The resulting increase of production was prodigious. As to the distribution, the only equitable means was rationing. All essential provisions were rationed and over 30,000,000 coupon books were issued. In order to avoid fraud, the price at which necessities could be sold was fixed. The state, the producer, or the importer, as the case might be, put the product on the English market at a fixed price. The profit of the wholesale and retail dealers was fixed in advance, and the total made up the price paid by the consumer. To simplify the distribution among the merchants, each consumer was obliged to enter his name on the books of a cer-

	1914	1915	1916	1917	1918	1919
Imports						
Food, drink, and tobacco.....	\$1,445,200,646	\$1,853,526,051	\$2,039,374,376	\$2,212,850,861	\$2,773,394,786	\$3,467,082,934
Grain and flour.....	387,549,903	546,789,078	648,476,367	851,639,065	750,261,949	753,108,565
Meat, including animals for food.....	807,686,070	422,402,412	457,699,187	498,320,261	845,210,547	853,817,794
Other food and drink:						
Non-dutiable.....						
Tobacco.....	882,663,931	445,091,170	457,358,923	469,132,926	621,452,541	776,079,988
Tobacco.....	831,181,732	397,436,621	440,506,494	374,662,781	467,686,781	467,686,781
Raw materials and articles mainly unmanufactured.....	36,319,020	41,600,720	35,388,405	19,095,922	88,782,840	207,806,306
Coal, coke, and manufactured fuel.....	1,155,979,975	1,394,590,770	1,636,997,003	1,872,631,613	2,231,236,504	3,145,951,728
Iron ore, scrap iron, and steel.....	204,023	52,232	38,825	31,298	2,093	27,359
Other metallic ores.....	26,704,160	86,715,601	59,060,165	59,071,392	65,530,405	58,331,222
Wood and timber.....	46,394,607	56,325,771	66,578,087	74,586,209	85,389,173	60,174,457
Cotton.....	123,332,250	159,564,379	196,458,077	124,805,758	141,861,582	851,893,092
Other textile materials.....	269,363,821	814,724,458	412,336,974	538,189,320	731,363,529	928,388,096
Oileeds, nuts, oils, fats, and gums.....	166,661,678	214,839,103	193,349,077	251,740,094	192,583,751	508,782,588
Hides and undressed skins.....	74,766,766	102,307,208	116,017,983	136,333,800	152,686,075	140,243,702
Paper-making materials.....	201,142,450	241,716,101	308,325,517	368,750,268	566,837,136	688,876,354
Miscellaneous.....	61,986,257	67,931,313	67,082,707	89,460,042	144,113,791	144,113,791
Articles wholly or mainly manufactured.....	151,558,305	170,476,876	39,586,583	50,411,470	63,999,093	80,620,987
Iron and steel, and manufactures of.....	781,025,686	883,027,486	920,714,295	179,232,022	139,283,946	233,499,225
Other metals, and manufactures of.....	52,384,182	52,586,465	54,573,403	1,068,646,066	1,363,170,673	1,298,123,419
Outlery, hardware, implements (except machine tools), and instruments.....	144,069,488	205,443,181	190,028,742	47,243,476	47,243,476	55,049,327
Electrical goods and apparatus (other than machinery and unmanufactured wire).....	25,277,589	28,987,616	27,752,015	212,315,550	227,038,795	170,888,539
Machinery.....	6,047,940	5,384,769	8,043,609	24,249,896	28,108,972	45,543,569
Ships (new).....	82,666,376	45,056,354	36,573,792	48,133,760	52,102,788	5,864,916
Manufactures of wood and timber (including furniture).....	156,357	765,286	70,199	608	5,966	78,331,916
Yarns and textile fabrics:	11,872,611	11,812,783	9,378,412	6,454,157	10,107,949	132,427
Cotton.....						20,974,211
Wool.....	45,615,208	36,766,700	40,487,515	18,794,666	24,031,707	40,345,387
Silk.....	37,220,982	8,392,693	4,490,334	1,225,404	720,953	15,717,223
Other materials.....	65,176,275	71,235,550	63,989,541	55,576,870	88,804,084	111,663,327
Apparel.....	85,783,978	44,006,930	54,519,390	39,597,521	31,337,583	51,409,818
Chemicals, drugs, dyes, and colors.....	20,696,008	14,386,104	13,288,304	6,646,194	6,258,119	18,601,965
Leather, and manufactures of (including gloves, but excluding boots and shoes).....	58,711,549	94,064,676	139,289,216	136,396,038	187,465,289	112,232,936
Paper.....	65,591,407	82,897,854	78,783,287	53,996,669	50,215,389	188,652,880
Earthenware and glass.....	14,571,795	10,589,455	14,857,449	3,189,699	1,517,852	7,615,752
Railway carriages and trucks (not of iron), motor cars, cycles, cars, etc.....	33,049,331	32,348,980	40,325,316	20,367,297	24,973,958	63,360,409
Miscellaneous.....	85,364,340	44,502,916	29,169,120	36,528,504	60,116,677	58,011,810
Miscellaneous.....	96,721,245	101,347,524	112,644,661	846,214,258	528,018,751	247,727,307
Miscellaneous and unclassified (including parcel post).....	12,868,520	14,594,761	16,921,170	29,638,865	37,246,406	80,492,345
Total imports.....	\$3,390,174,777	\$4,145,738,998	\$4,615,906,844	\$5,178,757,405	\$6,405,043,369	\$7,941,650,421

	1914	1915	1916	1917	1918	1919
Exports						
Food, drink, and tobacco.....	\$131,145,080	\$122,059,942	\$148,538,235	\$79,478,908	\$58,479,869	\$162,397,853
Grain and flour.....	15,062,207	18,779,468	18,503,048	4,193,137	2,187,098	17,189,038
Meat, including animals for food.....	5,544,705	6,534,118	6,043,302	1,307,288	585,542	3,085,574
Other food and drink.....	92,493,108	78,293,177	100,799,231	57,331,045	38,737,101	116,988,805
Tobacco.....	18,045,060	18,450,179	23,192,654	16,047,483	16,970,128	25,153,926
Raw materials and articles mainly unmanufactured.....	275,994,214	254,780,936	313,135,419	326,842,875	296,821,247	590,092,504
Coal, coke, and manufactured fuel.....	205,376,656	186,938,081	246,588,494	249,853,346	255,084,070	449,166,684
Iron ore, scrap iron, and steel.....	1,451,171	958,068	1,463,741	544,400	418,008	1,556,684
Other metallic ores.....	534,074	108,343	95,914	102,021	49,984	319,924
Wood and timber.....	1,349,817	973,188	1,502,508	2,411,807	4,500,539	4,138,799
Wool.....	21,748,827	18,718,710	17,916,588	15,502,848	8,296,688	35,465,431
Other textile materials.....	2,032,349	2,288,490	2,803,474	1,285,286	433,873	2,953,960
Oilseeds, nuts, oils, fats, and gums.....	19,282,493	26,288,845	22,386,435	39,067,967	14,181,286	69,860,215
Hides and undressed skins.....	7,217,345	4,335,653	7,438,299	6,411,005	5,833,615	7,917,275
Paper-making materials.....	4,112,470	8,252,788	2,622,693	2,862,911	1,279,810	4,484,087
Miscellaneous.....	12,888,512	9,019,775	10,315,428	9,262,288	6,733,917	14,204,438
Articles wholly or mainly manufactured.....	1,647,960,339	1,425,528,190	1,914,470,155	2,061,518,494	1,978,536,265	3,073,891,573
Iron and steel, and manufactures of.....	202,776,495	196,686,753	275,802,585	218,156,698	179,296,839	308,802,273
Other metals, and manufactures of.....	50,043,597	47,213,630	61,901,958	50,050,059	48,813,869	74,307,406
Cutlery, hardware, implements (except machine tools), and instruments.....	31,691,709	24,626,378	31,371,999	23,119,656	22,706,869	42,468,359
Electrical goods and apparatus (other than machinery and unlabeled wire).....	14,690,017	15,420,196	19,874,849	14,240,459	11,625,207	28,291,081
Machinery.....	152,628,492	98,264,219	98,388,941	94,813,460	78,450,233	159,321,759
Ships (new).....	33,737,274	8,237,335	6,280,632	5,291,380	5,096,851	11,331,027
Manufactures of wood and timber (including furniture).....	7,613,094	5,068,197	6,214,418	4,184,815	2,196,398	5,609,853
Yarns and textile fabrics:						
Cotton.....	502,546,607	418,128,616	575,745,843	710,142,606	876,298,357	1,172,168,705
Wool.....	153,294,190	159,818,986	298,266,341	257,183,205	242,872,602	476,328,436
Silk.....	9,078,811	8,273,503	11,709,373	9,920,870	10,212,370	17,989,813
Other materials.....	63,178,473	57,005,174	76,976,020	82,457,860	54,145,569	103,433,879
Apparel.....	70,718,592	56,470,078	82,443,829	76,708,192	57,513,927	85,428,356
Chemicals, drugs, dyes, and colors.....	94,935,919	107,396,062	134,145,496	114,767,346	110,390,210	143,408,511
Leather, and manufactures of (including gloves, but excluding boots and shoes).....	22,799,625	18,483,716	23,833,698	24,176,806	7,549,781	35,855,009
Earthenware and glass.....	20,184,490	16,050,975	19,066,684	18,945,854	19,354,854	25,219,420
Paper.....	15,504,372	14,575,786	25,282,378	15,546,871	15,585,745	20,604,435
Railway carriages and trucks (not of iron), motor cars, cycles, carts, etc.....	54,648,644	32,011,900	39,093,728	33,473,291	34,475,741	67,221,437
Miscellaneous.....	147,890,278	146,856,195	198,069,388	308,438,911	207,251,314	294,080,814
Miscellaneous and unclassified (including parcel post).....	41,005,951	70,593,225	92,666,384	97,193,251	106,318,168	58,900,633
Total exports.....	\$2,098,105,484	\$1,872,962,302	\$2,468,810,193	\$2,565,033,583	\$2,440,155,519	\$3,885,282,068

tain tradesman, and he could not purchase his rations elsewhere. Thus there was no freedom of choice among the shops, but that made no difference because prices were the same everywhere. The system was not rigid, but the prices were changed according to the conditions of the moment. There were severe penalties on all who broke the law, and these were enforced without any regard to social differences, rich people, prominent merchants, peers of the realm, etc., being brought to public trial along with the others. Thus in England the prices remained at a reasonable level and were virtually equal for all. In regard to the actual necessities of life, they may be said to have been entirely equal. The only advantage of the rich was that they could purchase certain products that were not subject to rationing, such as game, exotic fruit, etc. During the war it was impossible to obtain even in the best of restaurants, a portion of butcher's meat without a coupon. In certain respects the poor were favored. For example, the ration of manual laborers was higher than that of others.

COMMERCE. During the year 1919 the British imports surpassed those of the preceding year by 24 per cent and the exports surpassed those of the preceding year by 59 per cent. The imports in 1919 were \$7,941,650,421 and the exports \$4,684,954,784. The table (pp. 304-5) shows the value of imports and exports of the United Kingdom from 1914-19 inclusive.

During the nine months ending September, 1919, imports into the United Kingdom from European countries were substantially higher than the year before in all cases except from Norway, Switzerland, and Italy. There were large increases in merchandise imported from Russia, Denmark, Netherlands, Belgium, Greece, and European Turkey, while the colonies of Java and Canary Islands were also conspicuous in this respect. From other foreign countries the returns showed most marked gains in imports from Asiatic Turkey, Persia, China, and Argentina, while considerable increases were recorded in the case of the United States, Mexico, Costa Rica, Venezuela, Ecuador, Brazil, and Uruguay, and smaller gains from many others, but large decreases were recorded against Chile, Philippines, and Guam, Tunis, and Cuba, and a slight decline in the case of Japan.

The British (government) Board of Trade returns for 1919 showed that the exports of cotton manufactures of all kinds from the United Kingdom had an aggregate value of \$1,172,168,700, an increase of \$295,870,350 over 1918 and one of \$462,026,100 over 1917. The increase was attributed entirely to the rise in prices. Exports of cotton piece goods from the United Kingdom last year amounted to 3,528,756,500 yards, compared with 3,699,252,300 yards in 1918, and 4,978,237,900 yards in 1917; but the value was \$870,889,097, against \$674,087,929 in 1918 and \$548,992,384 in 1917, or an average of \$0.247 per yard against \$0.182 and \$0.11 in the two earlier years. In cotton yarn there was not quite the same situation as between 1919 and 1918, for exports in 1919 amounted to 162,665,500 pounds weight, valued at \$165,030,578, contrasted with a weight of 101,711,400 pounds and a value of \$104,090,294 in the year preceding, or an average value in 1919 of \$1.015 contrasted with \$1.023 in 1918. Compared with 1917, however, there was a sharp rise, the 133,151,300 pounds of cotton yarn shipped that year having a total value of \$81,

247,162, and an average value of \$0.61 a pound.

Many plans for the revival of British foreign trade were under discussion during the year. One scheme which was before the public in the beginning of the year proposed the appointment of commissioners familiar with the language, commercial needs, and customs of the respective foreign colonial markets, who should collect and classify trade information, report on the activity of foreign competitors, act for members in a legal capacity, report on the financial responsibility of local houses, on questions of transport, local and labor conditions, etc.

During the summer the restrictions on imports were partly removed, but the permanence of this policy was in doubt, as the government reserved the right to ask for the necessary powers to prevent "dumping." The important question of the relations with Germany was much discussed, and gradually opportunities offered toward resumption of commercial relations. For some time past the public had begun to realize that England ought not to forego her share of trade with Germany. In the newspapers that were regarded as representing the government it was pointed out that Great Britain was now at peace with Germany, and it was said that it was absurd to require England to neglect her interests in German trade, and to insist upon a policy that would cause the economic ruin of Germany. A federation of British industries, in order to obtain for the United Kingdom its fair share of German trade, arranged for an agency at Cologne. It was pointed out that other countries were contending for the main share in German trade, and that England must take measures in her own interest. It was not merely a matter of exporting British products to Germany, for of course it was impossible to sell without buying. In some products Great Britain failed completely. For example, in dye stuffs, it was pointed out that despite the enormous subsidies given by the government to the manufacturers, the cost of certain dyes was almost prohibitory. One of the dye stuffs that the Germans had sold to Great Britain before the war at 7 pence a pound, was now selling at 7s a pound. In spite of the protectionists' insistence that these products should be excluded, no matter what it cost to produce them in England, there was an increasing demand, especially on the part of the textile industries, which needed dye stuffs, for the opening of the market to the Germans.

TRADE WITH GERMANY. In connection with the resumption of British trade with Germany, details were furnished by the president of the Board of Trade showing that during the first 10½ months from the signing of the armistice the United Kingdom exported to Germany goods to the value of over \$80,000,000, and received from Germany imports valued at \$1,087,000. The details of these imports and exports during the period of Nov. 11, 1918, to Oct. 31, 1919, were as follows (values have been converted at the rate of \$5 to the pound sterling):

Imports from Germany to the United Kingdom:	
Potash compound (other than manure) ..	\$268,900
Manures	146,345
Leather, dressed	129,950
Skins and furs, dressed and undressed ..	108,880
Toys and games	43,155
Other goods	389,945
Total	1,087,175

Exports of produce and manufactures of the United Kingdom to Germany:

Herrings	1,910,550
Potatoes	1,754,865
Provisions, unenumerated	1,037,680
Tobacco and snuff manufactured in the United Kingdom	1,468,090
Linseed oil	8,066,980
Rapeseed oil	1,032,495
Soap	2,402,185
Cotton yarn	2,144,465
Cotton manufactures	18,468,040
Woolen and worsted yarns	1,023,905
Woolen and worsted manufactures	8,662,475
Other goods	6,023,635
Total	53,994,865

Exports of foreign and colonial produce and manufactures from the United Kingdom to Germany:

Rice	791,885
Oatmeal and rolled oats	556,715
Lard	2,740,025
Bacon	5,098,345
Meat, preserved otherwise than by salting (including tinned and canned)	3,396,930
Milk (condensed and powder)	2,349,990
Cotton, raw	1,775,925
Jute	782,800
Oils, animal and vegetable	555,270
Rubber, raw	1,872,045
Wool, sheep's or lamb's	307,365
Copper, unwrought	287,500
Cocoa, raw	510,035
Coffee, raw	1,216,255
Sugar	301,485
Tea	205,625
Tobacco	331,815
Other goods	3,968,865
Total	27,043,875

SHIPPING. During the year England kept up its shipbuilding at the rate of 1,800,000 tons a year. Certain centres such as Barry, Maryport, and Workington where work had nearly ceased, resumed their activity. At Newcastle and Hull alone the tonnage turned out increased about two-thirds between Sept. 30, 1918, and Sept. 30, 1919; the works at Liverpool and Glasgow doubled during the same period and those at Belfast, Londonderry, Greenock, Middlesbrough, Stockton, and Whitby increased about one-third.

Figures published by the Steamship Owners' Association early in the year compared the first 12 months ending July 31, 1916, when shipping was still under commercial control, with the 12 months ending July 31, 1918, when it was under state control. In the first period the food imports decreased 4 per cent in weight, and increased 40 per cent in cost over the figures in time of peace; in the second under state control the decrease in weight was 33 per cent; increase in cost was 76 per cent. In the first period imports of raw materials decreased in weight 16 per cent and increased in cost 7; in the second they decreased in weight 31 per cent, and increased in cost 56. In the first period the total ocean-going steamship tonnage available for trade purposes after satisfying military necessities showed a decrease of 22 per cent; in the second, it showed a decrease of 35 per cent. The decrease in weight of imports represented 22 per cent as between the two years in comparison, while the decrease in British tonnage represented only 13 per cent, thus the lack of British tonnage could not account for the falling off. The chief cause assigned for the decrease in supplies and the resulting increase in prices was the failure to retain the service of foreign shipping after 1916. In times of peace about 33 per cent

of the total imports were brought in by foreign vessels. Under commercial control this proportion was nearly maintained. Under state control the proportion fell to below 15 per cent, and the carrying power thus lost represented a weight of about 8,500,000 tons during the year.

RAILWAYS. In 1919 an authoritative estimate stated that there were in Great Britain some 23,500 miles of railway, and reckoned in single track, including the length of sidings, the total mileage in operation was in round figures 55,000 miles. The total length of running track included in this total was over 40,000 miles. Any statistical or commercial discussion of the British railways naturally must be referred to the last year of normal operation prior to the war. Then the number of passenger journeys was approximately 1,233,000,000 which produced a revenue of about £54,250,000. The amount of freight traffic was 372,037,000 tons. The engine mileage of loaded trains was 405,300,000, and the switching mileage 137,865,000, the total engine mileage, including the haulage of empty trains, being 628,324,000.

In this connection there were made available in 1919 figures for the revenue and expenditure of the railways of Great Britain and Ireland for the years 1916, 1917, and 1918. These showed that the average rate of dividend in 1918, 3.70 per cent for the first time during the war exceeded the 1913 average of 3.63 per cent. The total receipts again increased, but the per cent of expenses was greater than in the previous year (the proportion in 1914 was 63 per cent):

	1916	1917	1918
Total receipts, thousands. £	154,468	168,721	197,293
Expenditure, thousands. £	102,520	115,994	143,342
Net income	51,948	52,727	53,951
Per cent of expenses....	66	69	73

Aside from strike troubles and readjustments to peace conditions there were few important developments to record in the British railways outside of the creation of the Ministry of Transport which is discussed elsewhere. In November the North-Eastern decided to convert from steam to electric operation its main line between York and Newcastle, a distance of 80 miles, and the loop line between Northallerton and Ferryhill via Stockton, a distance of 31 miles. Inasmuch as the North-Eastern used these lines exclusively the situation was not complicated by the consideration of other traffic. The decision was important as there was a very heavy and varied traffic, ranging from East Coast and other important through trains to local freights on the two sections in question. The new plan was a radical departure as the previous experience of this company with electric traction has been confined to the working of a dense local passenger traffic on Tyneside, between Newcastle, North Shields, Tynemouth and Whitley Bay, and of the coal traffic between Shildon and Newport (Middlesbrough). Furthermore no other company in Great Britain had, however, experimented with the electric haulage of freight trains. On Tyneside the third rail system is in use, but between Shildon and Newport overhead electrical equipment was adopted. The new proposal which involved the use of electric locomotives was a combination of the third rail and overhead systems. The general scheme was that the former should be used on the running lines, and the latter

adopted in the freight yards and at large stations.

This was not the only proposal for electrification for Sir Eric Geddes in the debate on the Electricity Bill stated that the Midland, Great Eastern, South-Eastern and Chatham, and the London, Brighton, and South Coast railways were among the companies that had schemes of electrification.

In Great Britain as in Germany there was a tendency to transform munitions plants for the manufacture of locomotives and other rolling stock. One of the most important of these plants was the Sir W. G. Armstrong, Whitworth, & Co., Ltd., Scotswood works, where the first locomotive built was tested on November 12th. This engine was a large main line 0-8-0 super-heater locomotive with a 6-wheel tender for the North Eastern. At the date of the armistice the Scotswood works were entirely devoted to the production of munitions, the output of the plant during the period of hostilities reaching the total of 14,500,000 shells, in addition to vast numbers of cartridge cases, fuses, etc. After re-organizing and equipping the shops for locomotive manufacture it was reported that this plant would employ 3000 men and could produce one finished locomotive per day.

FINANCE. In the years ending March 31st, revenue (receipts into the exchequer) and expenditure (issues out of the exchequer, chargeable against revenue) have been as follows in thousands of pounds sterling:

	1916	1917	1918	1919
Revenue....	336,767	573,428	707,235	889,021
Expenditure.	1,559,158	2,198,113	2,696,221	2,579,301

On April 30th the budget estimates for 1919-20 were presented to the House of Commons by Mr. Chamberlain, as follows: Expenditure, £1,434,910,000; estimated revenue, £1,159,650,000; the balance to be covered by bonds, £275,260,000. Among the features of the budget may be mentioned the following: Preference on certain imports from the colonies and dominions; increase of duties on spirits and beer; reduction of excess profits duties; retention of the income tax rates of the previous budget; increase of death duties on estates exceeding £15,000; and the abandonment of the luxury duty. Of these the most important feature was the provision for imperial preference. On March 31, 1919, the debt stood at £7,235,000,000 as compared with £645,000,000 at the outbreak of the war.

On February 1st the national debt including floating debt was officially reported at £7,334,000,000. The debt on April 1st of the five preceding years was as follows: 1914, £707,654,110; 1915, £1,155,801,702; 1916, £2,197,439,245; 1917, £4,063,644,981; 1918, £5,921,095,819.

Mr. Austen Chamberlain, Chancellor of the Exchequer, submitted his proposals for the balancing of the budget on October 27th. Estimated revenue, 1919-20: £806,000,000, including £460,000,000 from inland revenue; £290,000,000 from customs and excise; £43,000,000 from the Post Office; and £13,000,000 from other sources. Estimated expenditure: £373,000,000 for consolidated fund charges, that is to say, for the service of the public debt; £135,000,000 for the fighting forces; £246,600,000 for the civil services; and £53,400,000 for the revenue services.

Estimated expenses, 1919-20: £1,642,295,000 or an excess of £191,195,000 over the budget estimate. As the revenue was estimated at £1,168,650,000 or £32,450,000 less than the budget estimate, the total deficit was brought to £473,645,000. The debt to the United States at the end of March, 1920, was estimated at £842,000,000. The amount owed to Great Britain by her Allies on that date was estimated at £1,740,000,000. Army expenditures for the financial year, 1919-20, were estimated at £500,000,000 instead of the £440,000,000 of the original estimate. Receipts from the sale of materials and from German payments for the army of occupation amounted to £95,000,000 leaving a net total expenditure of £405,000,000. This was an increase over the original estimates by £118,000,000.

ARMY. The number of discharged and demobilized down to February 18th was given as 36,942 officers and 1,478,801 men, or a total of 1,515,743. The following figures showing the casualties in the flying service during the war were published early in 1919.

	Killed	Wounded	Missing, including prisoners	Interned	Total
Officers . . .	4,579	5,389	2,794	45	12,787
Other ranks	1,587	1,876	834	39	3,836
Total . . .	6,166	7,245	3,128	84	16,623

At the end of January were published the plans for the future army. By these some 900,000 men were to be retained. When the armistice was signed in 1918 the officers and men of the British army numbered about 3,500,000. Some 2,500,000 before the end of January had been released, and of these about three-fourths had already been demobilized. On November 11th, the Royal Air Force numbered about 30,000 officers and 265,000 men of whom 1742 officers and 51,727 men had been demobilized by January 24th. The plan for the future army contemplated the retention during the year 1919 of about 6500 officers and 75,000 men. It was provided that the new army should consist in the first place only of those who had not enlisted before Jan. 1, 1916, and who were not over 37 years of age. If this method of selecting resulted in bringing to the colors more than 900,000 men, the age limit was to be reduced. It was provided that the divisions which remained to the end should be brought home as units. Increase of pay for the armies of occupation was provided, the total extra cost for one year being estimated as £29,000,000. The armies of occupation were to include the home army, army of the Rhine, army of the middle East, detachment of the far North, and garrisons of the Crown colonies and India. It was provided that soldiers under 26 years of age should serve only at home or in the army of the Rhine. During the early months of the year demobilization was rapidly going on. Down to January 30th for example, 1,033,514 had been demobilized from all three forces, the army, the navy, and the air forces. This tended to increase unemployment which was becoming at that time a serious menace.

The army estimates issued at the beginning of March showed that for the services of 1919-20 the total estimate was £287,000,000. At this time the minimum strength of the army after the war was placed at 952,000.

GOVERNMENT. The ministry at the beginning of 1919 was constituted as follows: Prime Minister and First Lord of the Treasury, D. Lloyd George; Lord President of the Council and Leader of the House of Lords, Earl Curzon; Lord Privy Seal and Leader of the House of Commons, A. Bonar Law; Chancellor of the Exchequer, Austen Chamberlain; Minister without Portfolio, G. N. Barnes; Minister without Portfolio, Sir Eric Geddes; Lord Chancellor, Lord Birkenhead; Secretary of State for Home Affairs, Edward Shortt; Secretary of State for Foreign Affairs, Arthur J. Balfour; Secretary of State for Colonies, Viscount Milner; Secretary of State for War and Secretary of State for Royal Air Force, Winston Churchill; Secretary of State for India, E. S. Montagu; Vice-President of the Air Council, Major-General Seely; President of Local Government Board, C. Addison; President of Board of Trade, Sir Arthur Stanley; Minister of Labor, Sir R. S. Horne; First Lord of the Admiralty, Walter Long; Minister of Munitions (later, Minister of Supply), Lord Inverforth; Minister of Food Control, G. H. Roberts; Minister of Shipping, Sir Joseph Maclay; President of the Board of Agriculture, Lord Ernle; President of the Board of Education, H. A. L. Fisher; First Commissioner of Works, Sir Alfred Mond; Chancellor of Duchy of Lancaster, Earl of Crawford and Balcarres; Postmaster-General, Albert H. Illingworth; Minister of Pensions, Sir L. Worthington Evans; Minister of National Service and Reconstruction, —; Attorney-General, Sir Gordon Hewart; Solicitor-General, Sir Ernest Pollock; Paymaster-General, Sir J. Compton-Rickett; Secretary for Scotland, R. Munro; Lord Advocate, J. A. Clyde; Solicitor-General for Scotland, T. B. Morrison; Lord-Lieutenant of Ireland, Viscount French; Lord Chancellor of Ireland, H. M. Campbell; Chief Secretary of Ireland, J. I. Macpherson; Attorney-General for Ireland, Arthur W. Samuels; Solicitor-General for Ireland, Denis S. Henry.

The principal members of the ministry in November were as follows: Prime Minister and First Lord of the Treasury, David Lloyd George; Minister Without Portfolio, G. N. Barnes; Lord President of the Council and Leader of the House of Lords, Arthur J. Balfour; Chancellor of the Exchequer, Austen Chamberlain; Lord Chancellor, Lord Birkenhead; Lord Privy Seal and Leader of the House of Commons, A. Bonar Law; Secretary for Home Affairs, Edward Shortt; Secretary for Foreign Affairs, Earl Curzon; Secretary for Colonies, Viscount Milner; Secretary for War, Winston S. Churchill; Secretary for India, E. S. Montagu; President Board Trade, Sir Auckland Geddes; Minister of Labor, Sir R. S. Horne; First Lord of the Admiralty, Walter Long; Minister of Transport, Sir Eric Geddes; President Board of Agriculture, Lord Lee; President Board Education, H. A. L. Fisher; Secretary for Scotland, R. Munro; Lord Lieutenant of Ireland, Viscount French; Chief Secretary for Ireland, J. I. Macpherson. See **AGRICULTURAL EXPERIMENT STATIONS; AGRICULTURE; ARBITRATION AND CONCILIATION; BIRTH CONTROL; COÖPERATION; EXPOSITIONS; FINANCIAL REVIEW; WAR FINANCE; HOUSING; INDUSTRIAL RECONSTRUCTION; MINIMUM WAGE; NAVAL PROGRESS; OCCUPATIONAL DISEASES; SOCIAL HYGIENE; STRIKES AND LOCKOUTS; TRADE UNIONS; UNEMPLOYMENT.**

HISTORY

IRELAND: THE REPUBLICAN MOVEMENT. As noted in the preceding YEAR BOOK the Sinn Feiners practically overthrew the Nationalists in the general elections of December, 1918. It had been resolved, however, that Sinn Feiners elected to Parliament should not take their seats but should confine themselves to agitating for a separate government. Accordingly, they held a conference at Dublin, January 21st, where a declaration of independence was adopted and where the so-called Provisional Government of the Irish Republic was proclaimed. This body sent Mr. J. Y. O'Kelly a Sinn Fein member of Parliament to Paris from Dublin as its representative, and the celebrated Sinn Fein leader Mr. Eamonn de Valera (a former member of Parliament), Count Plunkett, and Mr. Arthur Griffith were appointed to present an appeal on behalf of Ireland at the Conference. Mr. de Valera had escaped with other Sinn Fein leaders from Lincoln jail on February 4th. Serious disturbances took place during April including strikes at Dublin and Limerick which threatened to take the form of a revolt against the military and as a result martial law was proclaimed at Limerick, Cork, and Tipperary. From that time on to the close of the year Ireland was under a strictly military régime. Mr. de Valera represented the extremists and his views as expressed in February in the course of an interview illustrated the temper of that numerous element in the country. He said that if the Paris Conference failed to take steps to allow self-determination for Ireland, violence would be the only recourse left to Irish patriots; in short it would mean practically a continued revolution until Ireland's rights were recognized; and he added that he believed every man in Ireland would be willing to back up the demands of the Sinn Feiners when they were made and that his party had effected the organization of the country and was able at a moment's notice to take over the administration.

In the United States the Irish Americans were sympathetic with this extreme wing and took action on their behalf. On February 23d an Irish convention, which was held in Philadelphia, appointed three American delegates (Messrs. Walsh, Ryan, and Dunne), to be present at the Peace Conference and request that Irish independence be granted and they conferred on the subject with President Wilson on March 17th. It was expected that Mr. Lloyd George would receive them but their presence in England occasioned so many marks of hostility toward the government that he finally refused. They depicted in dark colors the conditions in Ireland under British rule. This naturally brought prompt denial from the Government. They were received with great enthusiasm early in May and left Dublin May 12th. The Unionist press commenting on the affair declared that this delegation had done more political harm in the course of a week than British statesmanship could hope to undo in months. Meanwhile the Irish delegates to the Peace Conference had been demanding passports from the British government and an appeal had been made to the American government. Finally on May 27th the American government through Mr. Lansing gave notice that the American representatives could

not take any further steps toward securing the passports. In June Mr. de Valera arrived in the United States, receiving an extraordinary welcome in various parts of the country from Irish-Americans and their sympathizers, being received in crowded halls in many cities and frequently hailed as the President of Ireland.

The perplexity over the Irish question on the part of British authorities was illustrated by the following summary of the views of certain Unionist papers. Any solution that was offered, they said, would immediately alienate a large body of Irish. For example it was proposed that some form of Home Rule should be bestowed upon an undivided Ireland but no form of Home Rule that had as yet been considered would avoid the bitter opposition of the Sinn Feiners. It was not certain that even the Nationalists would now accept Home Rule as it had been formerly understood. Again it was proposed that there should be Home Rule in the southwest while the northeastern part should remain under the Government of Great Britain; but the extreme parties in Ireland would not accept any such compromise and it was not accepted even by the Nationalists. It seemed therefore that to satisfy the Irish majority the Government would have to go at least so far as to accept the proposals which had been defeated at the Irish Convention. If it did this, however, it would immediately offend Ulster which showed a temper of resolute resistance, and the Government had promised not to coerce Ulster. The bringing of moral pressure to bear as proposed by Sir Horace Plunkett seemed decidedly difficult in the present state of public temper. The Nationalists had proposed that the League of Nations should be the instrument for the exertion of moral pressure on behalf of Ireland. The other political parties, however, refused to believe that the British government would invoke the aid of the League of Nations in its domestic affairs. Thus there were three distinct forces, one of which would be directed against any settlement that was undertaken.

IRELAND: POLITICAL UNREST. The movement towards an independent republic was checked by the threat of military suppression. The number of British troops was increased to over 100,000 and although it was reduced subsequently Ireland remained virtually under military occupation throughout the year. At the end of it Lord French was still acting as military viceroy. On December 19th, an attempt was made to kill him in Phoenix Park, Dublin, as he was passing through in an armored automobile. This unsuccessful attempt was only one of the many crimes and attempted crimes reported toward the close of the year, including the killing of policemen for trying to enforce the law and various other attacks upon the constituted authorities. The constabulary and troops made counter-raids upon the Sinn Feiners especially in county Cork, where a considerable amount of farm property was destroyed. The repressive policy of the government which included the suspension of jury trial, the extension of rights of search and the suppression of free speech and association, led to frequent manifestations of public discontent. To the supporters of the government these acts of violence seemed to prove the need of a firm policy and the use of armed forces as the only way

of dealing with the Irish question. The enemies of the government however believed that it proved that armed force was precisely the means that ought not to be employed, for they held that this spirit of revolt was the direct result of it and would continue so long as the government continued its so-called policy of firmness. The causes of discontent seemed to be wholly political for the country was more prosperous than it had been in generations, and for the first time in 70 years the population was reported to be increasing.

IRELAND: THE GOVERNMENT'S PLAN. During the latter months of the year it was known that the ministry was at work upon a new plan for the settlement of the Irish difficulty. The features of it were announced three days after the attempted assassination of Lord French. Among the essential points in the proposal as submitted by Mr. Lloyd George was the setting up of two Irish parliaments; one for Ulster and the other for the rest of the country. Between these two separate legislatures there was to be a bridge, consisting of a consultative council. This Council of Ireland was to consist of 20 representatives elected by each of the legislatures. There was conferred upon it at the outset the power of passing private laws but other powers might be conferred upon it by the two legislatures at their discretion. The two legislatures were to possess full constituent powers so that they might if they wished create a single Irish parliament for the whole country. The new plan offered Ireland complete control over a wide domain regarded as local, including agriculture, land, transportation, roads, bridges, hospitals, etc. The Imperial Parliament of Great Britain retained control of the army and navy, post-office, customs and excise, income tax, excess taxes, etc. The Irish legislatures were vested with all powers not specifically reserved to the Imperial Parliament. Ireland was to contribute a fixed sum to the Imperial Treasury and she was to retain her representation in the British Parliament. To many persons this seemed a just solution of the problem. A large number of the moderate papers of the United States declared that it was all that could be reasonably demanded. Nevertheless it was entirely inconsistent with the principles of what seemed to be the majority of Irish people and many of its features had been expressly condemned in advance. Among the difficulties with the plan was the long-standing one which for many years had been discussed without bringing a solution: Ulster preferred to remain under English rule. Again, the rest of Ireland was not united in its demands, one party insisting upon independence and the other on mere self-government. Not only was Ulster opposed to the independence claimed by the Sinn Feiners, but the Catholics themselves were divided in regard to it. There was a threefold or fourfold division. In the first place England would not consent to independence; in the second place Ulster was opposed to any measure of self-government that would leave her a helpless minority under hostile rule; in the third place there was the strong and according to some the predominant element of the people, the Sinn Feiners, who wished to set up an independent republic; in the fourth place there were the partisans of self-government as represented by the Irish Dominion League presided over by Sir Horace

sidered without reference to others. Before the war England had exported some £1,000,000,000 worth of goods, and it was computed that half of that was wages. Now this enormous trade was largely conducted on a narrow margin, and a little change one way or the other would have turned it over to some foreign competitor. The addition of 4s. a ton on coal for example might deprive England of half of her trade. The effect upon employment of such a result was manifest. He protested against the idea that there was an inexhaustible reservoir of profit. For example, the railways were making at the beginning of the war a profit of £50,000,000, which produced a dividend of less than 4 per cent, but since the war, owing to increases in wages, the cutting down of the hours of labor, increased cost of material, and other reasons, some £90,000,000 had been added to the cost of running the railways. Now this could come from only one source and that was the consumer; hence, it would be mainly paid by the third class passengers and by the shippers. The theory that employment could be provided by reducing the hours of labor, if carried too far, became absurd. For in that case it tended to cause unemployment all over the country since it increased the cost of a particular commodity, which as it entered into the production of some other commodity tended to diminish the latter, assuming that the amount of available capital remained the same. As to the serious forms of unrest there was a dangerous movement tending to undermine confidence in trade union leaders. This was dangerous because it had resulted in a lack of discipline and made it impossible to deal with the trade union as a responsible body. This apparently was instigated by those who had an interest in causing anarchy. He declared that the government was bound to examine fairly and carefully every demand that was put forward by any body of workmen, but that the government would not admit demands which tended to overthrow the existing order, relying simply upon brute force. It took its stand on the principle that Prussianism in the industrial world must be fought as well as in the political. The government would fight against any unfair bargain, whether it was demanded by employees or employers.

The labor question was brought up early in the session of the new Parliament. On February 13th a resolution was introduced by the Labor party regarding the absence from the King's speech of any definite proposal for the relief of the industrial unrest. There was a debate on the subject in which the following points were brought out. It was said that the working-men, especially the miners, had just grounds of complaint. Their representatives declared themselves hostile to Bolsheviks and profiteers alike, but they insisted that remedial measures should be taken. The secretary of the railway men, Mr. J. H. Thomas, urged the government to put the Whitley report into immediate effect, and to insist on full publicity in all disputes. He called upon the government to deal with the reactionaries as it would deal with the Bolsheviks, and he warned the employing class that the working classes could no longer be treated as mere beasts of burden. He declared that within the next few months the situation would be dangerous. The government argued that it had taken a great step in ad-

vance by giving the eight-hour day to the railway men, and said that agreements in respect to the hours of labor had been made applying to over 3,500,000 men. If the people were reasonable there was no danger of serious unemployment. The chief perils were the lack of credit in business, and the fear of undertaking new enterprises.

THE SERVICE BILL. On March 6th an attack was made by the Labor party and by some of the Liberals upon the new Service Bill at its second reading. The purpose of the measure was to prolong the Conscription acts to Apr. 30, 1920. The government set forth its reasons for maintaining the armies of occupation on a compulsory basis for another year. In the debate that followed it was pointed out that the working classes would not consent to such measures involving a further waste of blood, and it was argued that voluntary enlistment would provide sufficiently for all post-war conditions. For the government it was said that it did not intend to fasten conscription upon the country. On the contrary it intended to make an end of it as fast as possible, and to use its influence against it throughout Europe. The government did not intend to send large bodies of troops to Russia for example. If the bill were not passed, it was argued that the entire machinery of the army would fall to pieces, and the result would be anarchy in England. The Labor party continued to oppose the measure but it passed the House of Commons March 31st. It provided for an army of about 850,000 men. Mr. Churchill, speaking for the government, explained that the army of occupation would cost about £133,000,000 as compared with the expenditure of £1,500,000,000 on the army, navy and munitions during the previous twelve months. He denied the charge that Great Britain was going to keep an army on the Rhine to serve as a debt-collecting agency. He declared that for enforcing compliance with the terms of peace and for securing the safety of the British Empire the force provided could not be regarded as excessive.

LAND FOR SOLDIERS. Measures for the settlement of soldiers on the land were under discussion at the beginning of the year. According to the outlines published a new system of land acquisition was involved, whereby public acquisition would be secured in exchange for an annuity to the present owner, the state having the right to redeem the annuity. The plan of farm colonies was given up and the new measure was to provide land as near as possible to the homes of the applicants.

HOUSING BILL. A bill empowering the local authorities to submit plans for the provision of new houses was discussed in April and passed July 17th. In default of action by the local authorities the Local Government Board could present plans and provide houses. A housing bill for Scotland was enacted August 11th and one for Ireland, August 15th.

ALIENS BILL. A measure introduced, March 31, providing for the continuance in peace time of the war-time policy of restrictions on aliens caused repeated conflicts in the House. It was sharply criticized for the discretion allowed by it to the Home Secretary in the matter of its application. The government made modifications under pressure and discussion of it was renewed in November.

GOVERNMENT MACHINERY. An important re-

port was made at the beginning of the year on the machinery of government. Its recommendations were based on studies not only by prominent civil servants but by representatives of labor. It recommended the distribution of the business of the departments according to the class of service, and an analysis of the work of the civil service. As matters stood each minister was responsible to Parliament for those government activities which affected the sectional interests of particular classes of persons. This meant overlapping, repetition, and the evasion of responsibility. In general the committee recommended the organization of ministries in accordance with the functions which they performed. The ministries in question were: Finance, national defense, external affairs, research and information, production, employment, supplies, education, health, justice. Several of these were new, notably, the ministry of research and information. Another abuse which the report indicated was the undue limitation of expenditures by the Treasury, which led to the swelling of the estimates by the departments. It concluded on this point that "obligation upon spending departments to formulate a full and reasoned statement of their proposals must be recognized as placing upon the treasury a corresponding obligation not to assume a negative attitude in the first instance toward suggestions for improving the quality of the service or the efficiency of the staff which administers it."

PEACE CABINET. In the middle of October the government was defeated unexpectedly in a vote on an unimportant measure when many were absent. Nevertheless it was regarded as a reverse, and led to a discussion as to the resignation of the cabinet and appeal to the country. The serious condition of the finances led to a demand for various reforms on the part of the press. The budget estimate showed a deficit of £250,000,000, but the actual estimated deficit, according to the revised figures submitted to Parliament on October 27, was £473,000,000. This condition, coupled with the defeat the week before, led the Government to accede to certain demands made upon it, especially in regard to the return of the cabinet to a peace basis. It was announced on October 27th that the cabinet would assume its peace time form, and all the ministers would be responsible for the decisions instead of the few ministers that constituted the war cabinet. The change was announced in the House of Commons by Mr. Bonar Law, who invited the following officials to become members of the cabinet:

Lord President of the Council; the Lord Lieutenant of Ireland or Chief Secretary for Ireland; the Lord Chancellor; the Home Secretary; the Secretaries of State for Foreign Affairs, the Colonies, War and Air, and India; the First Lord of the Admiralty, the Secretary for Scotland, the President of the Board of Trade, the Minister of Health, the President of the Board of Agriculture, the President of the Board of Education, the Ministers of Labor and Transport, the Lord Privy Seal, and George Nicoll Barnes, Minister Without Portfolio.

LABOR DIFFICULTIES. The danger of a serious labor war with the miners, railway men, and other great bodies of working men showed itself early in the year. In February the Ministry of Labor declared that the government had decided to call a national industrial conference

on February 27th. This met with general approval among the laboring classes. At that time an offer from the government was under consideration by the Miners' Federation which had made proposals for higher wages, shorter hours, and a more liberal scheme of demobilization, and nationalization of mines. The government's answer consisted of a list of counter-proposals which the conference rejected after only an hour's consideration. In regard to the wage question Mr. Robert Smillie, president of the federation, declared that unless the government could show that the increase demanded was unreasonable, its answer manifestly would have no force. The miners demanded an increase of 30 per cent in wages; a six-hour day; the maintenance at trade union rates of wages of mine workers who were unemployed on account of demobilization, and the nationalization of the mines. Meanwhile the government was proceeding with its inquiry into the questions raised by the miners and into conditions of the coal trade generally. By this time close relations had been established between the miners and the railway men and transport workers and the three bodies were referred to as the "Triple Alliance," which was seen to have the power of practically controlling the industrial situation. The Industrial Conference met on February 27th and appointed a joint committee with equal representation of employers and working-men under a chairman chosen by the government to report on the causes of and remedies for the situation. This report unanimously adopted on April 4th recommended the establishment of a 48-hour week; a universal minimum wage; recognition of and negotiations between organizations of employers and workpeople; housing schemes, development plans, etc., for preventing unemployment; normal provision for maintenance during unemployment, and the establishment of a permanent national industrial council to advise the government. The government promised to give a sympathetic study of these proposals.

In February a coal commission was created as a result of the threatened strike of the 700,000 miners. It consisted of Mr. Justice Sankey, chairman, and coal owners, miners, and persons appointed by the government including Mr. Balfour and Mr. Sydney Webb. Meanwhile the miners by an overwhelming majority had voted to strike but decided to defer action until a report of the commission appeared. The Sankey report led the government to offer the miners an increase of two shillings; a seven hour day reduced to six hours after 1921; £1,000,000 a year from the coal revenue for miners' housing and progressive reorganization of the industry; and an effective voice for miners in the direction of mines. The miners voted on April 9th and 10th to accept the terms pending a further report by the commission. This report was published on June 20th. It recommended that coal should be nationalized. This policy was accepted unanimously. A majority of 10 to 3 advocated the payment of a fair compensation to the holders. The chairman and half the members of the commission, a majority of 7 to 6, recommended nationalization of the collieries in 1922 and in the meantime the reorganization of the control of the industry. In spite of these concessions the miners were far from satisfied and a strike was in progress in the summer in the Yorkshire mining district.



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FUEL SHORTAGE ACUTE DURING THE LONDON RAILWAY STRIKE
Girl workers stacking 20,000 empty petrol cans

the factories were closed for lack of coal but the strike was settled by the intervention of the government.

In October the railway strike came to an end, and the railway men returned to work. This was characterized by some as the end of a revolutionary attempt against the government, for the cause of the strike was not less political than economical. Mr. Lloyd George saw in the movement from the first a revolutionary conspiracy. The contest was not over wages or any other difference pertaining to the treatment of labor. The strike was designed as an expression of power and was a part of the international revolutionary trade unionism. This international movement had been tending for some time past toward some kind of an effective demonstration, and it had chosen England as the proper place for it on account of the strength of trade unionism in that country. The alliance of the railway men, the transport workers, and the miners had formed an enormous mass of organized labor, and according to its enemies aimed to revolutionize the system of government. During the railway strike the zeal on the part of the people to fill the gaps in the service was extraordinary. Almost every class in society including the highest took up the work that the strikers had abandoned. Public opinion generally seemed hostile to the strike, which, if successful, would have practically brought the industries of the country to a standstill. The failure of the strike was held by the British press as a triumph of the public. The above point of view, however, was exclusively that of the conservative and capitalistic organs.

The strikers and a portion of the public did not accept it. One of the demands of the strikers had been a minimum of 50 shillings a week. This indeed had been granted by the government. But it was pointed out that the government proposal as to the wages and their duration was not accepted. Moreover, Mr. Lloyd George had imposed as an essential condition of settlement that work should be resumed in advance and as it turned out work was not resumed in advance, the order for it not having been issued until agreement had been reached in regard to other matters. Again, the government had given way just before the date for holding a meeting of the great trade unions which threatened a general strike. The probable reason for regarding the outcome as a victory for the government was the latter's apprehension of serious results. The government had feared that the strike of the railway-men might be the first step in a revolutionary movement, and they had at all events thought it possible that a serious attack would be made upon the mechanism of the state. From this point of view the government had characterized the strike as an anarchistic measure. On the other hand, the leader of the railway men, Mr. Thomas, had maintained that the union aimed simply at industrial and economic results. The strikers believed that if the government had continued its course it would have drawn other trade unionists into the movement, and that the result would have been of a more serious nature. See **STRIKES AND LOCKOUTS; TRADE UNIONS.**

THE GOVERNMENT PROGRAMME. In the latter part of October the government set forth its programme, as follows:

Labor. A national maximum 48-hour week.

A living wage for all workers.

Workers to have:

- (a) A voice in working conditions.
- (b) A financial interest in their work.
- (c) Provision for unemployment.

Whitley councils to be developed.

Healthy houses and expeditious transport.

Coal Mines. State purchase of mineral rights.

A levy on purchase price for social amelioration of mining areas.

Miners to help shape conditions of industry.

Reorganization and economical management of mines.

Labor representation on controlling boards of mining areas.

A free career to talent throughout the industry.

A committee on output to be set up immediately.

Trade Policy. Free imports (with certain exceptions) from Sept. 1, 1919.

No government support of foreign exchanges except to prevent complete collapse.

No dumping of foreign goods for sale at sweated prices.

Powers to prevent any flood of imports competing unfairly with British goods through a collapse of exchange in the country of origin.

Protection for unstable "key" industries, i.e.:

- (a) Products essential for war.
- (b) Industries so neglected before the war that there was an inadequate supply of their products.

(c) Industries which it was found necessary to foster and promote during the war.

(d) Industries that cannot maintain the level of production essential to the nation without government support.

No undue profits at the expense of the community to be made by reason of protection of unstable "key" industries.

Development of technical instruction and research for all classes.

Inquiry and propaganda to promote increased output.

Standardization to be promoted and coördinated by the state.

Development and control of electric and water power supply.

Imperial trade to be fostered, and an imperial investigation board to improve communication and transport within the empire.

Export credits to facilitate resumption of trade with disorganized European countries.

Stimulation of export trade.

Agriculture to be further developed, and fixed prices for crops to continue for another year at least.

Protection against trusts, combines, and harmful trade combinations, government to collect fuller statistics of national trade, prices, costs, profits, etc.

THE PARTY SITUATION. From the time of the general elections at the close of 1918 down to the end of 1919 some 15 by-elections were held and in about a third of these the contest was a three-cornered one between the Coalition, Liberal and Labor candidates. In every contest where the three were represented the Labor candidate polled the largest vote. In the by-elections as a whole the Labor vote also exceeded that cast for either of the other parties. The Labor and Liberal vote considerably exceeded the government vote, being about two-thirds of the total.

The average of the vote cast for the Labor candidate was considerably greater than the average for the independent Liberal candidate. Thus at the close of the year there were predictions in many quarters that the present Coalition cabinet would be overthrown and that the Labor party was in a fair way to become its successor. While these were merely conjectures, it was clearly shown that the Labor party had at length arrived at a position where it must be reckoned with as one of the great national parties of England. Its programme had not changed during the latter part of the year but a change in the attitude of the public was manifest, for it was generally realized that it had become an organized party and stood on a permanent basis and was not merely the expression of discontent of a class; although there was still a considerable body of comment in the press which indicated that its true nature was misunderstood, referring to it as a class movement or as a party of laborers. It was pointed out on the other hand that the Labor party was not a party of laborers but included representatives of all classes and was based upon a body of opinion as definite if not more definite than the programme of the other parties. During the preceding five years it had been recruited by large bodies of intellectuals, by professional men and women including lawyers, teachers, doctors, architects, authors, newspaper men, workers in physical science laboratories, clerks and even manufacturers and employers. It included some generals in the army and admirals in the navy, three or four members of the House of Lords, one or two bishops, etc. It so happened that among the candidates in the recent by-elections not one had been a laborer in the usual sense of the word. Among them were a physician, a manager of a coöperative society, a retired engineer, etc. It was recruited also from among the 20,000,000 male and female voters admitted to the ballot by the law of 1917 and it drew to it a large number of women and young men who had not been brought up under the old political tradition of party warfare. Many of its members had suffered especially from the war and saw in the Labor party the only way of restoring prosperity. In general it appealed to the younger generation which took little interest in the distinction between Asquith Liberals, Independent Liberals, Unionists, Conservatives, etc., and who found nothing in the old parties that satisfied their whole aspirations. There was much alarm in the conservative parties over its successes. It was regarded as a dangerous step toward Socialism and it was feared on account of its inexperience and ignorance of public affairs. Mr. Winston Churchill for instance declared that it was totally incapable of governing. This provoked the immediate response that if the Labor chiefs had not studied at universities and did not equal their opponents in elegance of language still they had no less practical common sense than their adversaries and they pointed to the capable men that had represented them in Parliament and in the government. Moderate supporters of the Labor party were not alarmed by the spectre of Socialism. They pointed out that there was no tendency in England to go to the extremes of Continental Socialism and that the great mass of English workingmen were remarkable for their attach-

ment to tradition. They held to a conservative and slow progress toward the realization of their advanced ideas. Another feature of the situation was the decline of the Liberal party in spite of an occasional large vote in its favor. By the general election of 1918 they had been reduced to 30 seats in Parliament which was only half of the strength of the Labor party and in the course of the year not one of the Liberal leaders had succeeded in getting back to Parliament.

LLOYD GEORGE AT THE PEACE CONFERENCE. In the latter part of April an address which Mr. Lloyd George delivered in the House of Commons on the subject of his work at the Peace Conference was widely commented upon by the British press and in certain quarters severely criticized. His speech answered complaints which had appeared in the press in regard to the failure of the Conference to take proper measures for insuring the peace of Europe. A telegram had been sent to him by some four hundred members of the House of Commons expressing their anxiety. After this telegram he inclined to the side of France and accepted her demands. He insisted in his speech that there was no Russia and pointed out the absurdity of attempting a conquest of Russia. On this point he was criticized by the interventionists who said it was a question of helping patriotic Russians to help themselves. The London *Times* attacked this portion of his speech as insincere. It also was dissatisfied with his treatment of the question of recognizing the Bolshevik government. He had declared that there was no question of such recognition. But there were reasons to suppose that some form of recognition had been seriously discussed at the Peace Conference and had been advocated by interested parties. The *Times* critic maintained that if it was defeated the result was due in part to the resistance of the French government and in part to publicity. The policy of aiding the people who were living in the vicinity of the Bolsheviks was approved by Lloyd George but the fear was expressed that he would not pursue this policy with firmness. He said in his speech that two of the great Allied powers had been on the point of quarreling over the question of Teschen, and he asked how many members of the House of Commons ever heard of Teschen. The *Times* critic took the stand that everybody had heard of it and that everybody knew the origin of Russian influence in Germany and added that Mr. Lloyd George evidently judged the knowledge of the members of Parliament by the standard of his own. The *Times* characterized him as grossly ignorant of the matters under discussion, saying that while he was able to read and write he did neither and suggesting that if he had consulted the columns of the *Times* in years gone by he might have been better fitted for his discussion. The *Times* considered him completely ignorant also of other aspects of the Polish question and asked if he did not know that the Poles were anti-Bolshevik until M. Paderewski told him so. The *Times* referred to Mr. Lloyd George as having wasted weeks at the Conference by requiring it to serve the purpose of an elementary school and supply him with primary instruction in European politics and geography. The above perhaps may suffice to show the spirit of a large part of the criticism directed against him for whatever the

faults of his policy may have been there was a large body of British criticism which revealed no higher a degree of intelligence than the passage above summarized. In regard to Bolshevism Mr. Lloyd George said that it threatened to conquer the population that revolted against it and that had been organized at the request of the Allies. The Allies could not dismiss the latter as soon as they had served their purpose. They could not say "We do not need you any longer and we permit the Bolsheviks to cut your throats." Where the population was not behind this resistance their organized effort against Bolshevism had failed as for example in the Ukraine. It had been proved that the population in Siberia, the Don and elsewhere were offering a real resistance and it was the business of the Allies to support them in accordance with their promises. Therefore he did not see any departure from the policy of non-interference in the fact that Great Britain felt bound to support Admiral Kolchak and Generals Denikin and Kharkoff. As to the supply of food he believed that Great Britain was not supplying it for they were fairly well off as regarded food. What they needed was arms and equipment. The policy of Great Britain was to organize all the forces of the Allied countries bordering on Bolshevik territory including Poland, Rumania and Czechoslovakia, who were undoubtedly anti-Bolshevik. If the Bolsheviks attacked any of the friends of the Allies it was the business of the Allies to come to their defense. See RUSSIA, and WAR.

LLOYD GEORGE AND THE TIMES. Reports of conflict between Lloyd George and Lord Northcliffe who controlled the *Times* and a chain of influential newspapers were frequent throughout the year. In the speech above-mentioned Lloyd George made certain remarks about these newspapers which in part accounted for the tone of the *Times's* criticism above quoted. He said that at the beginning of the Conference there were strong appeals to everybody all round to support President Wilson and his great ideals and that these appeals came from the same papers that were now hysterically attacking all those great ideals. In the press a short time before there had been a cartoon representing Bolshevism as a bogey and Lloyd George as a person trying to frighten the working classes with that mere bogey. Now Bolshevism was no longer a bogey but it was a monster and Lloyd George was represented as trying to dress it up as an angel. He added that when a man has deluded himself and every one whom he permits to approach him to add to that delusion that he is the only one that can win the war and then finds that there is no demand for him among those who are directing the destinies of the world and that the war has been won without him it is naturally somewhat disappointing. If then he comes to the conclusion that he is the only man to make peace and is not called upon to do that either, it is still more disappointing. These words hinting plainly at Lord Northcliffe accounted for the sharpness of the *Times's* retort. Mr. Lloyd George went on to say that they still believed in France that the *Times* is a serious organ and do not know that it is merely a threepenny edition of the *Daily Mail*. This accounted for his speaking of the matter. His interest in maintaining the good will of the two countries was his only apology for taking notice of that

kind of trash. After the speech, in addition to the criticism above mentioned the *Times* printed various extracts from the French press in praise of its policy and calling it a friend of France, as well as tributes to the paper and to Lord Northcliffe from a variety of other sources.

THE PRINCE OF WALES'S VISIT. In the interest of good will between Great Britain and the Dominion of Canada and the United States, the Prince of Wales paid a long visit to both countries. He was received with great enthusiasm by both the Canadian and the American public.

GREECE. A maritime kingdom in the south-east of Europe between the Ægean and the Ionian seas consisting of the lower part of the Balkan Peninsula, the island of Crete and new territories acquired as a result of the Balkan wars. The mainland of Greece is nearly cut in two by the gulfs of Patras and Lepanto on the west and the Gulf of Ægina on the east. Besides the continental portion there is the Archipelago of the Ægean Sea and the Ionian Islands. The surface is mountainous and the coasts are high, rocky, and indented.

AREA AND POPULATION. The area before the Balkan wars given at 25,014 square miles with a population in 1907 of 2,643,109. The area of the new territories was placed at 16,919 square miles making a total of 41,933. The population of the new territories in 1913 was placed at 2,101,616. The total population estimated in 1914 was 4,821,300. In 1914 Greece with the consent of the Allied Powers occupied Northern Epirus and in March, 1916, took formal possession of the country but its claims to it were still unsettled at the close of 1919. Athens in 1907 had a population of 167,479. Saloniki the largest town in the new territories had a population estimated in 1915 at 157,889. The majority of the inhabitants are Greek Orthodox. Education is compulsory between the ages of 6 and 12 but the law is not well enforced and illiteracy prevails. It was reported that 30 per cent of the army recruits could not read or write and that 15 per cent could read only.

PRODUCTION AND INDUSTRY. Agriculture is the main occupation although owing to the irregular and rocky surface only one-fifth of the land is cultivable. The chief crops are currants, olives, nuts, figs, tobacco, grapes, cereals, and fruit. The yield of currants for 1918 was placed at 123,000 tons; of olive oil, 31,702,800 gallons; of tobacco, 48,699,000 pounds, a falling off of over 50 per cent from the previous year; of wine, 10,566,800 gallons; of nuts, 4,486,185 pounds. In 1919 Greece, like most of the other countries, was suffering from the extremely high price of food-stuffs, the increase as compared with 1914 being from 100 to 500 per cent at the beginning of 1919. The livestock at the end of 1918 was estimated as follows: Sheep, 4,795,597; cattle, 441,865; asses, 298,640; mules, 123,285; horses, 212,148; swine, 30,241. The chief minerals in respect to value are lead, magnesite, marble, lignite, salt, and emery. No figures for the production are available later than for 1916 and 1917. In 1916 the value of raw ores was placed at \$2,812,329 and in 1917, \$3,443,953; of finished products, 1916, \$2,994,219, and 1917, \$1,313,943; of marbles and quarry products for 1916, \$6,541,152, and 1917, \$6,163,821. An important industry is that of emery which however underwent a decline in 1918. It is a monopoly of the state under the control of the Interna-

tional Financial Commission. During the war the entire output of emery was taken by the French government on account of the Allies. The value of emery mined in 1911 was \$491,600 and in 1918, \$314,783. According to the industrial census of 1917 there were 2213 factories employing 36,124 hands. Cotton manufacturing in recent years has been making steady progress. In 1919 the number of employees was placed at 5731 and there were 128,255 spindles and 16,965 looms. The government issued a decree prohibiting the importation of cotton goods indefinitely except under special permits. Wages in all industries advanced greatly during the war. The wages of heavy manual labor for example rose from about 98 cents in 1914 to \$2.38 in 1918; of dockworkers from \$1.54 to \$2.30; of car conductors, from 77 cents to \$1.74; of machinists, \$1.16 to \$2.70, etc.

COMMERCE. The following table shows imported articles during 1916 and 1917:

Articles	1916	1917
Agricultural products	\$37,786,221	\$19,225,806
Animal products	1,293,536	788,795
Chemical products	5,801,791	2,432,428
Cotton yarns and fabric....	6,707,620	4,923,199
Esparto and hat-making material	561,527	351,305
Fish and fish products....	1,941,251	962,672
Forest products	1,500,425	297,372
Furniture and other wooden articles	42,310	79,045
Glassware and pottery	395,596	114,623
Leather, and manufactures of	1,310,867	976,019
Live stock	174,765	131,311
Metals and minerals, crude.	7,321,183	774,414
Metals and minerals, manufactured	1,473,439	454,020
Oil and oil substances....	486,814	227,855
Paper products and objects of art	2,548,200	1,404,185
Scientific apparatus	452,929	328,219
Sugar and sugar products..	6,482,426	3,989,440
Tannery materials and dyes	115,560	59,536
Wines and liquors	309,109	446,480
All other articles	886,127	1,474,465
Total	\$77,091,696	\$39,440,692

The following table shows the value of the exported articles during 1916 and 1917:

Articles	1916	1917
Agricultural products	\$17,575,356	\$10,402,709
Animal products	3,609,329	1,318,925
Chemical products	254,407	40,071
Cotton yarns and fabrics....	5,196	270
Esparto and hat-making material	1,400	.....
Fish and fish products....	125,445	21,944
Forest products	1,287,841	380,241
Glassware and pottery	5,936	2
Leather and manufactures of	16,722	.....
Live stock	695	.....
Metals and minerals, crude.	2,636,962	6,116,308
Metals and minerals, manufactured	240,184	.....
Oil and oil substances....	4,734,877	1,848,281
Paper products and objects of art	7,936	3,227
Sugar and sugar products..	1,401	.....
Tannery materials and dyes	148,512	76,567
Wines and liquors	2,097,003	962,988
All other articles	103,362	20,383
Total	\$32,832,564	\$21,191,911

In 1918 the exports to the United States exceeded in value those of any preceding year, owing to the heavy exports of tobacco. The export of licorice root to the United States has become a considerable factor in the trade.

COMMUNICATIONS. The number of steamships that entered the Port of Piræus during 1917 was 923 and of sailing vessels, 6813. Of these 848 steamships and 6735 sailing vessels were under the Greek flag. The freight rates between the United States and Greece reached an enormously high figure during 1918. According to the report of the United States Bureau of Foreign and Domestic Commerce 223 sailing vessels entered with 12,271 tons and 201 steamships with 265,356 tons in 1917 and in 1918 the figures were respectively: Sailing vessels 310 of 27,921 tons and steamships 266 of 389,127 tons. Those cleared during the same years were in 1917, 137 sailing vessels of 7309 tons and 185 steamships of 252,951; and in 1918, 157 of 12,575 and 230 of 343,583. The latest figures for railways available are for 1914 when the total length was 1365 miles. A junction line was completed in 1918 on the government-owned Larissa railway extending from Papapouli to a point on the Belgrade-Constantinople line. This marked an important event in the economic development of the country for it offered easy means of communication with the rest of Europe and opened the way to a trade with the east.

It was arranged during the year that the Greek railways should be organized under French auspices and late in December a party of 50 French railway experts left Paris for Athens to take up the work of supervision. The Greek railways were to be materially extended after the coming into force of the Treaty of Versailles. In fact one of the projects passed upon with a favorable decision by the Greek government was to build the Drama-Cavalla Railway, an important railway and sea connection which will bring the Salonica-Serres-Constantinople Railway at Drama into connection with the Ægean Sea at Cavalla. In 1919 the only outside outlet was in Western Thrace at Dedeagatch, an open roadstead unprotected from the strong southerly winds. The necessity of building the Drama-Cavalla line had long been apparent but the Turkish government did not act in the matter. Cavalla is the only important Macedonian port except Salonica, and is the most important tobacco-exporting port in Greece.

As laid out the right of way will be 43 kilometers (27 miles), compared with 36 kilometers (22.5 miles) by the carriage road. The country is mountainous, necessitating several tunnels, one of them about 2½ kilometers (1.5 miles) long. A conservative estimate stated there would be required at least two years for the completion of this line.

FINANCE. The unit of value is the drachma, equivalent to a franc, or 19.3 cents. At the close of the war, exchange was extraordinarily stable. This was attributed to many causes including the growing difficulty of buying goods abroad; the large expenditure for the Greek army in 1917; and the holding of large sums abroad under the control of the National Bank of Greece. During 1918 the drachma varied only from 5.14 to 5.225 to a dollar. The budget estimates for 1918 are: Revenue, 1,150,494,459 drachmas; expenditure, 1,361,666,378 drachmas. The public debt has been largely under the control of the International Finance Commission created in 1898 after the war with Turkey. This commission assumes charge of the government monopolies of salt, kerosene, matches, cigarette paper, playing cards, and emery, also

of various stamp taxes, the revenues of certain custom houses, and a certain portion of the tobacco taxes. The receipts from these sources during the year 1918 were in spite of the war considerably in excess of the average. They amounted to \$17,396,691 against \$10,619,179 in 1913. The outstanding foreign debt on Jan. 1, 1918, was according to a British source, £45,863,692. Agreements between the Greek government and representatives of the United States, France and Great Britain on Feb. 10, 1918, provided that the three latter governments should advance to the Greek government during 1918 the sum of \$144,750,000, the control of which was to be in the hands of the International Finance Commission and Inter-Allied Military Commission with headquarters at Athens. During the year 1918 these commissions recommended to their governments the opening of credits amounting \$118,695,000. Further credits were opened in 1919, leaving a comparatively small balance.

GOVERNMENT. The legislative power is vested in the assembly or *boulé* and the executive in the King acting through a responsible ministry. The ministry at the beginning of 1918 was as follows: Premier and Minister of War, E. K. Venizelos; Vice-President of the Ministerial Council, E. Repoulis; Minister of Foreign Affairs, N. Politis; Minister of the Interior, M. Raktivan; Minister of Finance, M. Negrepontis; Minister of Justice, J. Tsirimocos; Minister of Marine, Admiral P. Kounduriottis; Minister of Food Supplies, P. Bourloumis; Minister of Education, D. Dingas; Minister of Agriculture, G. Kafandaris; Minister for Refugees, S. Simos; Minister of Communications, A. Papanastasion; Minister of National Economy, K. Spyridis; Minister without Portfolio, A. Michalacopoulos.

HISTORY. The former Prime Minister, Stephanos Skouloudis, and some of the members of his cabinet were arrested early in February on a charge of a treasonable plot along with the former King. A campaign to win the people to the policy of freeing the Greeks of Asia Minor was carried on successfully early in the year and the policy became extremely popular. It also included the liberation of the *Ægean Islands*. On May 4th it was announced that Greece had been made a mandatory for the city of Smyrna and Greek forces were landed there. Later a Greek high commissioner was appointed to this post. There had been some talk of a plebiscite and in view of the possibility Greek and British agents had tried to win over the support of the natives. Greece was represented at the Peace Conference by Prime Minister Venizelos and Foreign Minister Politis. Through their efforts they secured from the Peace Conference the right to the Dodecanese and these islands voted for union with Greece on April 29th. Meanwhile on April 18th Greece had concluded a treaty of friendship with Yugoslavia. According to the Greek press on November 20th an agreement was reached with Italy whereby the Dodecanese was to be given to Greece, Italy retaining a coaling station, and Italy was to receive concessions to the south of Smyrna. The Greek papers also reported a similar agreement to the above in respect to Epirus, and said that Greek troops in accordance with it were beginning to occupy Northern Epirus to the line set by the protocol of Florence and that the Italian troops were withdrawing to that line,

expressions of good-will being exchanged by the two governments. Despite the strict censorship enforced by the new Greek government, there were frequent reports of attacks upon it by friends of the ex-King. The latter himself on December 1st declared that Venizelos held the power only by terrorism and by setting up martial law. He declared that over 90 per cent of the people were opposed to him. The loyalists contended that Greece had lost her chance of gaining a predominant position in the Near East when she abandoned her neutrality. The ex-King denied that he was ever on the side of the Central Powers, asserting that he only desired neutrality. There were press rumors late in November of an attempt to restore the old régime, but they were not confirmed. See *WAR*.

GREEN, GABRIEL MARCUS. Mathematician, died at Cambridge, Mass., January 24. He was born in New York, Oct. 19, 1891, and graduated at the head of his class at the College of the City of New York in 1911. He won several prizes in mathematics and gained further distinction by his doctor's dissertation at Columbia University in 1913. He received the instructorship in Harvard in 1914, and two years later became the head of the faculty. Though young, he had already given promise of a highly distinguished career.

GREENLAND. A colony belonging to Denmark in the Arctic Ocean, with an estimated area of 849,420 square miles. A large part of the country is uninhabited, and the area of settlement which constitutes the colony proper is only about 34,015 square miles. Its population in 1911 numbered 13,449. The largest settlement in Greenland is the town of Sydproven, which had by the 1911 census, a population of 789. The smallest is Skansen, in North Greenland, with 46 inhabitants. The imports from Greenland into Denmark in 1917 amounted to £50,283, and the exports from Denmark, £44,543. The trade with the colony is a monopoly of the Danish government. The chief exports are seal and fish, sealskins, oil, and blue fox skins. The administration is under a director who resides in Copenhagen. See *POLAR RESEARCH, Arctic*.

GREER, DAVID HUMMELL. Bishop, died in New York City, May 19. He was born at Wheeling, W. Va., March 20, 1844; graduated at Washington, College, Pa., in 1862; studied theology at the Protestant Episcopal Seminary at Gambier, Ohio; was ordained deacon in 1866 and priest in 1868. He was rector at Clarksburg, W. Va., and at Covington, Ky., from 1866 to 1871, when he was called to Grace Church at Providence, R. I., where he remained until 1888. From 1888 to 1904 he was rector of St. Bartholomew's Church, New York City. On Jan. 26, 1904, he was consecrated bishop-coadjutor, and he became bishop of New York on the death of Bishop Potter, July 21, 1908. He was the author of *The Historic Christ* (1890); *From Things to God* (1893); *The Preacher and His Place* (1895); *Visions* (1898).

GREGG, DAVID. American pastor and theologian, died in New York City October 11. He was born at Pittsburgh, Pa., March 25, 1845, and graduated at Jefferson College, Pa., in 1865. Besides holding important pastorates in Presbyterian churches in Pennsylvania and New York, he was president (1904-09) of the Western Theological Seminary, and the author of the following articles: *From Solomon to the Cap-*

tivity (1890); *Studies in John* (1891); *Our Best Moods* (1893); *The Heaven Life* (1895); *The Testimony of the Land to the Book* (1895); *Makers of the American Republic* (1896); *Ideal Young Men and Women* (1897); *Facts that Call for Faith* (1898); *Things of Northfield and Other Things* (1899); *New Epistles from Old Lands* (1900); *The Dictum of Reason on Man's Immortality* (1902); *'Between the Testaments* (1907); *The Master as a Preacher* (translated into Greek and published in Athens, Greece, 1909); *Pulpit Stars of the Nineteenth Century*. He edited the religious periodical, *Bana*, from 1874 to 1886.

GRENADA. One of the Windward Islands, belonging to Great Britain. Area, 133 square miles. Half the Grenadine islands are in the colony of Grenada and half in that of St. Vincent. Population, estimated Dec. 31, 1917, 73,373. The capital and chief town is St. Georges, with a population of 4916, which are mainly negroes, only 2 per cent of the population being European. The chief products are spices and cocoa. The imports, in order of their importance for the year 1919, were cotton manufactures, flour, dried and salted fish, and various foodstuffs. The principal exports were cocoa (almost entirely) and nutmegs. Of the 1919 cocoa exports the United Kingdom received 82 per cent, and the United States received 18 per cent. The United Kingdom and the British colonies absorbed the major portion of the foreign trade, in years gone by, but in 1919 the United States practically equalled the trade of the United Kingdom. Revenue in 1917-18 was £105,540, and the expenditure, £108,792. The 1918 public debt was £183,460. The total value of imports in 1918 was £353,978; that of exports £480,553. Total shipping entered in 1917, 375,440 tons.

GRENADINES. See GRENADA and ST. VINCENT.

GROEBER, ADOLF. Leader of the Centre party in Germany, died in Berlin, November 19. He was for a long time an influential member of the Reichstag before the war, but during the war was less prominent in the party than Erzberger. He was born in 1854 and entered the Reichstag in 1887. He appeared sensationally in the press in 1908 when in the course of a debate in Parliament he referred in insulting terms to the newspaper men in the gallery. When Hertling became minister president of Bavaria Groeber succeeded as leader of the Centre. He was in the cabinet of Prince Max of Baden at the outbreak of the revolution, and was elected to the National Assembly from Württemberg after the revolution.

GUADELOUPE. A French colony in the Lesser Antilles, consisting of two main islands, separated by a narrow channel, with a united area of 722 square miles, and five dependencies of smaller islands, whose area is 688 square miles. Population in 1919, estimated unofficially at 213,229. Capital Basse-Terre, with 8656 inhabitants. The chief products are sugar, coffee, and cacao. Two steam navigation companies supply direct communication with France. Much valuable timber is contained in the forests, which, however, is not extensively worked. Practically all of the 75,000 acres which are planted with sugar cane find difficulty in being cultivated, because of the shortage of mules and oxen. It is estimated that approximately 12,000 oxen

and 3000 mules are now being used in the sugar industry. It is also estimated that the 1919 crop of vanilla beans which were harvested and cured during the past winter and spring amounted to 40,000 pounds. Of this total, which is less than the average production, more than 23,000 pounds had already been shipped to the United States, and the probability indicated that most of the remainder would be sent to the United States.

GUAM. An insular possession of the United States situated in the Pacific Ocean, lying between 13° 13' and 13° 39' north latitude and 144° 37' and 144° 58' east longitude. Area, estimated 225 square miles; population exclusive of officers and enlisted men of the navy and marine corps and their families, on July 1, 1919, 14,165, of whom 13,623 were classed as "natives" and the remainder as "foreigners." Of the latter, the largest number were Japanese, 91. Only 66 were classed as Americans. Death rate per thousand 72.3 (due to epidemic of influenza), birth rate 38.7. Imports, fiscal year ending June 30, 1919, exclusive of naval and military stores and supplies, \$328,571.14 of which all but \$41,259.45 was received from the United States and its possessions. Exports \$95,770.56. The principal export was copra of which 851,680 pounds was shipped to Japan and 1,140,924 to the United States. Principal imports were lumber, rice, flour, tinned and fresh meats, canned provisions, automobiles, kerosene and gasoline, tobacco, clothing, and cotton goods. The revenues of the insular government were \$128,814.28, expenditures \$131,346.44. Guam is a station of the Commercial Pacific Cable Company and cables from Manila, Yokohama, Midway, and Yap Islands are landed here. A high power radio station was constructed by the Navy Department, opened for communication in November, 1917. The United States Department of Agriculture maintains an experiment station in Guam. The port of entry is Apra Harbor, 5 miles from Agaña, the seat of government. Apra is closed to foreign vessels except by special permission of the United States government. During the fiscal year ending June 30, 1919, 33 vessels having a total tonnage of 63,794 visited the port. It was acquired from Spain by the Treaty of Paris, 1898; captured by the United States naval forces under Capt. Henry Glass, U. S. N., June 21, 1898; formally taken possession of by the United States Feb. 1, 1899. For administrative purposes Guam comes under the Navy Department, and, to facilitate such administration, the whole island with surrounding islands and cays has been designated as a naval station. The governor, who is a naval officer designated by the President, is also commandant of the naval station, Guam. Governor in 1919, Capt. William W. Gilmer, U. S. navy, who assumed office Nov. 15, 1918.

GUATEMALA. A Central American republic in the northwestern part of Central America, extending from the Caribbean Sea to the Pacific Ocean. Capital, Guatemala City. Boundary disputes cause divergent estimates of area, one area being estimated at 48,290 square miles, and another at 43,641 square miles. The population was estimated Dec. 31, 1917, unofficially, at 2,123,091, of whom about 61.5 per cent were Indians, the large portion of the remainder being mestizos. Guatemala City has an estimated population of over 100,000. Other towns are

Quezaltenango (28,940); Coban (30,770); and Totonicapan (23,310).

EDUCATION. Primary instruction is free and compulsory for all children between 6 and 14 years of age. In 1917 there were 1942 government schools, with an attendance of 54,479. The main university, opened in 1918, was the University of Guatemala, known as Universidad Estrada Cabrera. The National Central Institute confers degrees recognized in all Central American republics. There was a school of handicraft for women, a National Conservatoire of Music, and a school of art. There were also schools of commerce, law, medicine, pharmacy, and dentistry. Roman Catholicism is the prevailing religion, but all other creeds have complete liberty of worship. The state does not recognize any creed.

PRODUCTION AND COMMERCE. The fertile soil yields many tropical and sub-tropical products. Coffee, the most important crop, was estimated in 1919 at approximately 1,100,420 quintals (a quintal equals 101.4 pounds) and in normal years about 200,000 quintals are consumed in the country, the remainder being left for exportation. There were in 1919, 1500 plantations under cultivation, containing some 450,000,000 coffee trees. The Germans owned and controlled between 50 and 60 per cent of the coffee plantations. Other crops, arranged in order of their importance, in 1919, were: Plantains and bananas, maize, beans, wheat, rice, and potatoes. The department of Peten is rich in mahogany and dyewoods, most of which go to the United States. This is also the centre of the chicle industry, 407,195 pounds being produced in 1916. Small quantities of cotton were grown. There are silver, gold, copper, and lead mines. As transport facilities are lacking, mining has been little developed, there being 129 mines fully registered. The total imports for 1917 and 1918, respectively, were \$8,991,573 and \$6,634,000; and the exports were, respectively, \$7,809,732 and \$11,319,000. Imports for 1917 were: Cotton, \$2,294,425; foodstuffs, \$437,687; linen, hemp, and jute, \$232,737; paper, etc., \$239,263; iron and steel, \$399,609; leather, \$206,952. The exports for 1917 were: Coffee, \$5,355,577; rubber, \$64,184; timber, \$138,254; hides, \$35,477; bananas, \$990,790; sugar, \$449,945. In 1919 the trade was distributed among the following countries in order of the amount: United States, United Kingdom and Belize, France, Mexico, and Central America. Large sums of money were advanced in 1919 from the United States for the purchase of coffee on a large scale. The area of cereals under cultivation during the first six months of 1919 in manzanas (equivalent to 1 3/4 acres), corn, 122,007; beans, 3994; wheat, 2705; rice, 3489; potatoes, 1198; yuca, 289.

COMMUNICATIONS. In recent years, much attention has been paid to road-building and improvements. July 19, 1919, the governor of Quiché officially opened a new road connecting Quezaltenango with Totoni Capan through the hills of Maria Tecum, which attains an altitude of 13,000 feet at places. The main railway in the southeastern part of the country connects Puerto Barrios on the Caribbean Sea with San José on the Pacific, a distance of 270 miles. An international bridge is at present under construction, crossing the Suchiate River. It was estimated that the bridge would cost 500,000 pesos, to be shared equally by both the Mexican and

Guatemala governments. The bridge was to be 400 meters long, and was to be completed in six months. There were 4245 miles of telegraph line and about 400 post offices, and the total length of railway open to traffic was 563 miles.

FINANCE. Silver is the legal standard of value, the unit being the silver peso, which fluctuates with the value of silver. The revenue for 1918 was \$110,937,325, and the expenditure, \$77,666,023. The receipts fell off \$24,534,259 as compared with the previous year, and the expenditure decreased \$53,747,205. During 1919 measures were under way for the establishment of the national bank which had been decreed by the Assembly. On Dec. 31, 1917, the outstanding amount of 4 per cent external debt was, in pounds sterling, 1,512,460. Certificates in respect of unpaid interest, £844,603 sterling. Total, £2,357,063. The internal debt on Dec. 31, 1916, amounted to \$135,799,843 currency, and 1,091,702 gold.

GOVERNMENT. The National Assembly constitutes the legislative power. There are 69 members, elected by direct vote for four years, with universal suffrage. The President is elected by direct vote for six years. There is a Council of State of 13 members, part of whom the Assembly elects, and part the President appoints. The President in 1919 was Manuel Estrada Cabrera, whose term expires in 1923.

GUERNSEY. See **ARCHAEOLOGY.**

GULF STREAM. See **HURRICANES.**

GULLIVER, FREDERIC PUTNAM. Scientist, died in Philadelphia, Pa., February 8. He taught at St. Mark's Scientific School for a number of years and was active in the American Association for the Advancement of Science where he was secretary of the geological and geographical department from 1907 to 1911. He served also as topographer in the United States Geological Survey and was afterward in the commission on chestnut blight in Philadelphia.

GYMNASTICS. The national Amateur Athletic Union gymnastic championships were held at Los Angeles on May 10th. The Los Angeles School of Physical Training won the team honors with 24 points. The Norwegian A. C. of Brooklyn finished second with 16 points and the Los Angeles A. C. third with 7 points.

The winners in the individual events were: Horizontal bar, Peter Hol, Norwegian A. C.; long horse, P. Krempel, Los Angeles, S. P. T.; parallel bars, Peter Hol; side horse, P. Krempel; flying rings, J. Gleason, Los Angeles A. C.; club swinging, A. McCloud, New York A. C.; rope climbing, K. Fintzelberg, Concordia Turnverein, San Diego, Cal.; tumbling, A. Nugent, Newark, N. J.

HAASE, Hugo. Leader of the Independent Socialist party in Germany, died in Berlin November 7th as the result of wounds received on October 8th, when he was shot by an Austrian named Johann Voss. Though operations had been several times performed resulting in the amputation of one of his legs, he succumbed after a long struggle. He was born in 1863. He became prominent in Socialist councils and succeeded Bebel as president of the German Socialist Democratic party. He was elected to the Reichstag in 1897 and regularly reelected except in 1907 when the Socialist party was generally defeated. During the war he disagreed with the majority's war policy and split off in 1915, forming an Independent Socialist party, whose

principle was that financial credits must be refused the government even at the risk of German defeat. The new party was believed to have resorted to secret measures for the stirring up of a feeling against the government and for the organization of a general strike. The naval mutiny of August, 1918, was attributed to its propaganda. In November, 1918, when the imperial government fell, Haase became a member of the first coalition cabinet, but resigned a month later after frequent conflicts with his colleagues. As a member of the National Assembly he attacked the Social Democracy and the Clericals who together formed a *bloc*, and he co-operated to some extent with the Spartacides. On June 29, 1918, he already predicted the ruin of Germany under its military autocracy, and at this time he said that Count Hertling and Herr von Kühlmann were merely figureheads and that the imperial government ruled alone. He was considered for the office of Chancellor when Germany was forming a government to sign the Peace Treaty, but refused. He had been opposed to Noske's policy, when Minister of Defense, in putting down strikes and revolts.

HABIBULLAH, KHAN. Ameer of Afghanistan, assassinated in the valley of Laghman, Afghanistan, February 24. He was born in Samarkand in 1872 while his father, Abdur Rahman, was in exile. He was married in early youth to seven wives from among the powerful families of the country for political motives. During his father's life time he was governor of Kabul. He succeeded to the throne on his father's death in 1901. At first inclined to hostility toward the British régime, he changed his attitude after a visit to India and was on friendly terms with the viceroy. In general he was described as genial in his character, and versatile in his interests and accomplishments. During the war he was loyally neutral and maintained order on the frontiers. A short time before his death he entered into an alliance with the Ameer of Bokhara and other rulers in central Asia, which was especially designed to arrest the spread of Bolshevism.

HACKER, ARTHUR. British painter, died November 12. He was born in London, England, Dec. 25, 1858, studied in Paris under Bonnat, and traveled widely on the continent and in North Africa. His specialty was figure painting. Among his works may be mentioned the following: "Her Daughter's Legacy," 1880; "The Mother," "Children's Prayer," and other domestic subjects; "Pelagia and Philammon," 1887; "Via Victis," "Christ and the Magdalen," "Annunciation," "The Cloud," "Vale," "Studies of London," etc.

HAECKEL, ERNST. German zoologist and natural philosopher, died at Jena, Germany, August 9. He was born at Potsdam and studied medicine and the natural sciences at Berlin, where he practiced medicine for a short time. He passed some years of travel in the study of marine zoology and in 1862 he entered the faculty of the university of Jena, becoming professor of zoology in 1865. Many scientific journeys followed, resulting in the publication of monographs on sponges and other topics in marine zoology. In the 1880's he published reports on various deep sea species and in 1890 *Plankton-Studien*. Darwin's *Origin of Species* was attributed largely to the inspiration of Haeckel's writings, especially to the *General Morphology of*

Organisms, published in 1866, which was the first attempt to apply the development theory to the whole field of morphology and to found a classification of animals and plants based on relationship. More famous was the work which was translated into English under the title *History of Creation*, a popular exposition of the doctrine of evolution, which had the widest circulation of all his writings. His influence upon contemporary thought was very considerable. The feeling in the Allied countries turned against him in the latter part of his life owing to his having signed the celebrated manifesto of the 93 intellectuals which defended Germany's course at the beginning of the war. Other works of his were the following: *Ueber die Entstehung und den Stammbaum des Menschengeschlechtes*, (1870); *Anthropogenie*, (1874); *Die Gastretheorie* (1874); *Die Welträtsel, Gemeinverständliche Studien über monistische Philosophie* (4th ed., 1900, English translation, *The Riddle of the Universe*, 1902); *Die systematische Phylogenie*, (1894); *Indische Reisebriefe*, (1882); *Aus In-sulinae*, (1883); *Kunstformen der Natur* (1904); *Wanderbilder* (1905); *Anthropogenie* (5th ed., 1903); *Ueber unsere gegenwärtige Kenntniss vom Ursprung der Menschen* (1898); *Der Kampf um den Entwicklungsgedanken*, (1905).

HAESSELER, GOTTLIEB VON. German field marshal; death reported in Berlin, October 27. He was born in 1835 and served in the Danish war in 1864, the Austro-Prussian war of 1866, and the Franco-German war of 1870. In the last-named he was one of von Moltke's favorite generals, and was quartermaster of the army during the occupation after the war. He was widely known as a strategist, and his qualities as a soldier and his epigrammatic remarks were much quoted. He was retired in 1903 with the highest rank in the army, but worked under the general staff and was active during the great war. After the failure before Verdun where he had been attached to the Crown Prince's staff, he was recalled.

HAITI. A West Indian republic, occupying the western part of the island of Haiti, the other portion of the island constituting the Dominican Republic. Capital, Port au Prince. The area is estimated at 11,072 square miles. The ecclesiastical estimate of population, from parish registers, indicated a population of 2,029,700. The density was greater than any other South American republic, with the exception of Salvador. Negroes composed about 90 per cent, the rest being mulattoes. The language is a French dialect. The largest city is Port au Prince, with an estimated population in 1919 of 101,272. Cap Haïtien was estimated to have a population in 1919 of 18,952. However, various other unofficial estimates place it as high as 30,000. Other important towns are Cayes, 12,000; Gonaïves, 30,000; Port de Paix, 10,000; and Jérémie.

The public instruction costs nearly \$1,000,000 annually, but education, though made compulsory in 1910, was still very imperfect. In 1918 there were 854 primary schools, with 61,956 pupils; 29 secondary schools, with 4816 pupils; 1 normal school, a school of medicine, and a school of law, with 102 students.

PRODUCTION, COMMERCE, ETC. The imports for 1917 and 1918, respectively, were: \$8,600,086 and \$10,500,000. The exports for the same

periods were, respectively, \$7,220,290 and \$11,000,000. The imports were from the following countries, in order of amount: United States, United Kingdom, France, and Spain. The 1918 exports went to the following countries, in order of amount: United States, France, Spain, and United Kingdom. According to official statements made public in the early part of 1920, the foreign trade for the fiscal year ending Sept. 30, 1917, amounted to \$15,826,344, of which \$8,606,055 were imports and \$7,220,289 exports. The chief articles of export were: Coffee, 46,384,084 pounds; log-wood and log-wood extracts, 93,574,196 pounds; cocoa, 3,891,997 pounds; cotton, 2,517,880 pounds; honey, 1,760,998 pounds; goat skins, 355,090 pounds; hides, 355,587 pounds; lignum vitae, 15,572 pounds; cotton seed, 3,731,754 pounds; corn, 1,114,202 pounds; cotton oil, 940,911 pounds; castor beans, 853,467 pounds. Official reports in 1919 concerning the cotton crop were to the effect that although Haitian cotton is usually put on the market in a badly-prepared state, owing to the difficulty of obtaining laborers when gathering season arrived, the cotton was considered to be of a fair grade. When once planted, it grows and continues to produce for 15 or 20 years. Formerly the greater part of the crop went to Europe, principally to France. Since the war sales have been increasing in the United States. An import company is now being organized to encourage the cultivation of cotton on a large scale.

Press reports stated that the government, following out its plan of increasing the arable areas by irrigation of tracts of wild land, would begin, in November, 1919, to irrigate the plains of L'Archaie and Leogane.

FINANCE. There is an inconvertible paper currency, the monetary unit being the gourde, or dollar, that has a fluctuating market value. In late 1919 this value was about \$.20. The revenue is derived mainly from export and import duties, paid in American gold. The largest portion of expenditure is for debt charges, 2,882,468 U. S. gold dollars. On Dec. 31, 1917, the debt consisting of gold loans, amounted to 120,912,060 francs. The internal debt amounts to 3,368,705 francs. The budget for 1918-19 balanced at 3,057,803 U. S. gold dollars, or 3,999,646 currency gourdes. The National Bank of Haiti was authorized by the Council of State to coin 20,000,000 gourdes.

GOVERNMENT. The legislative power is constituted in the National Assembly, consisting of two chambers, the Chamber of Communes, and the Senate. Members of the former are elected for three years by direct vote, and the latter for six years by vote of the lower house. The two chambers, in joint session, elect a President, whose term is seven years, and who is ineligible for reelection except after the interval of at least one term. The United States established a virtual protectorate over the republic by a treaty ratified by the Haitian National Assembly November, 1915, and by the United States Senate, February, 1916. The President of the republic in 1919 was M. Sudre Dartiguenave (elected Aug. 12, 1915). In 1919, the military representation of the United States in Haiti was placed under the charge of Rear-Admiral Thomas Snowden of the United States navy on February 25th, who, at the same time, assumed charge of the military government of Santo Domingo.

HALE, WILLIAM HENRY. Lawyer and public official, died May 4 at Brooklyn, N. Y. He was born in Albany, N. Y., Aug. 20, 1840 and graduated at Yale in 1860. He was admitted to the bar in 1861 and after engaging in business began the practice of law at Albany in 1888. After that he practiced in Brooklyn where he was superintendent of public baths from 1906 to the time of his death. While holding this office he was a member of the first International Conference on public and school baths held at the Hague in 1912 and was appointed to the second fixed for 1914 but not held on account of the war. He was a frequent contributor to the scientific press.

HALL, PAULINE. American singer in light opera, died at Yonkers, N. Y., December 29. She had been on the stage for more than 40 years. She was born at Cincinnati, Ohio, Feb. 26, 1860, and made her debut in that city as a ballet dancer in 1875. She appeared in a great variety of light operas, being especially successful in the opera *Erminie* which was played 800 times. She was one of the best singers in operetta, gaining an immense popularity as a star in Aronson's Casino Company (New York, 1885-92). Later she toured the country with her own company. Toward the end of her life she appeared frequently in vaudeville, and was on the stage a week before her death, in a piece called *The Gold Digger*.

HALLAM, ALFRED. Musical conductor died in New York City, December 31. He was born at Rugby, England, in 1859, and came to the United States in 1893. He was for many years in charge of the music in the schools at Mt. Vernon, and in 1913 became musical director at Saratoga. He afterwards held the same position with the Chautauqua Institution. He conducted the well-known chorus of the Labor Temple and the People's Choral Union of New York. Previous to his illness he served as song leader of the War Camp Community Service in Boston, Mass.

HALSEY, FRANCIS WHITING. Editor and author, died in New York City, November 24. Shortly before his death he had finished editing a 10 volume *History of the European War*. He was born in Unadilla, N. Y., Oct. 15, 1851, graduated at Cornell University in 1873, served on the staff of the *New York Tribune*, 1875-80, and on the *New York Times* from 1880 to 1902, being editor for six years of *The Times Saturday Review*. Besides his many books and magazine articles he was widely known as a lecturer. His writings include: *Two Months Abroad* (1878); *The Old New York Frontier* (1901); *Virginia Isabel Forbes* (memoir of his wife, 1900); *Our Literary Deluge* (1902); *The Pioneers of Unadilla Village* (1902); historical and biographical introduction to Mrs. Rowson's *Charlotte Temple* (1905); historical introduction and foot notes to Richard Smith's *Tour of Four Great Rivers* (1906). Editor: *American Authors and Their Homes* (1901); *Authors of Our Day in Their Homes* (1902); *Women Authors of Our Day in Their Homes* (1903); *Of the Making of a Book* (1904); *The World's Famous Orations* (associate to William J. Bryan, 10 vols., 1906); *The Best of the World's Classics* (associate to Henry Cabot Lodge, 10 vols., 1907); *Great Epochs in American History Described by Famous Writers* (10 vols., 1912); *Seeing Europe With Famous Authors* (10 vols., 1914); *Balfour,*

Viviani, and Joffre, Their Speeches in America (1917).

HAMILTON, ALLAN McLANE. American neurologist, died at Great Barrington, Mass., November 23; well known as an alienist and specialist on nervous diseases. He was born at Brooklyn, N. Y., Oct. 6, 1848, and graduated at the Columbia College of Physicians and Surgeons in 1870. In 1879 he received the first prize from the American Medical Association. He came into public prominence after the assassination of Garfield when he testified for the government as expert in the trial of Guiteau. He was professor of mental diseases at Cornell University Medical College from 1900 to 1903 and he was a member of the most important medical societies. Among his works may be mentioned: *Clinical Electro-Therapeutics*, (1873); *Nervous Diseases*, (1878); *Medical Jurisprudence*, (1883); *A System of Legal Medicine*, (1894); *Railway and Other Accidents*, etc., (1904); *Intimate Life of Alexander Hamilton*, (1911); *Recollections of an Alienist*, (1916).

HAMILTON COLLEGE. A non-sectarian institution for the education of men, at Clinton, N. Y. In the fall of 1919 the enrollment was 298 and there were 27 members in the faculty. Productive funds amount to \$1,487,700, and the income for the year was \$117,883. The library contains 84,000 volumes and 12,000 pamphlets. Hamilton is one of the many colleges to benefit by the will of Mrs. Russell Sage; the gift is approximately \$800,000. The college was founded in 1812. President, Frederick Carlos Ferry, Ph.D., Sc.D., LL.D.

HAMMERSTEIN, OSCAR. Opera and theatre director, died in New York City, Aug. 1, 1919. He was born in Berlin, Germany, in 1847 and came to the United States in 1863. After several ventures in other employment he engaged in the theatrical business in the 1880's and succeeded in building the Harlem Opera House and several other theatres. In 1906 he entered upon the important enterprise of the Manhattan Opera House where he gave grand opera in rivalry with the Metropolitan and showed unusual shrewdness and skill in its management. He was foremost in establishing French opera in America. While managing the Manhattan Opera House he built and opened the Philadelphia Opera House in 1880. In 1911 he removed to London and opened the London Opera House. Difficulties arising in his endeavor to establish a new grand opera company in 1912 and the controversy which followed are described in the NEW INTERNATIONAL YEAR BOOK for the years 1907-14 under the title *Music*.

HAMPTON NORMAL INSTITUTE. An institution for the education of negroes and American Indians situated at Hampton, Va. It is non-sectarian and co-educational; founded in 1868. There were over 1800 students at the beginning, and between seven and eight hundred had been in active war service. Principal James E. Gregg, D.D.

HANDLEY, WILLIAM WHITE. American diplomat, died at Callao, Peru, September 27. He was born at Washington, D. C., June 29, 1872, and studied at Columbian University. From 1898 to 1904 he was in business in Venezuela and at Trinidad and he served on commissions in Africa for the United States government. After holding several consular positions in South America he became consul-gen-

eral in the Belgian Congo in 1908, at Naples in 1910, and at Callao in Peru from 1913 to the time of his death.

HARBEN, WILLIAM NATHANIEL. Author, died at New York City August 7. He was born at Dalton, Ga., July 5, 1858, engaged in business until 1888 and after that devoted himself to journalism. He was on the staff of *The Youth's Companion* and contributed to the leading magazines. The list of his writings is very long, those which date from 1900 being as follows: *Northern Georgia Sketches* (collected), (1900); *The Woman Who Trusted*, (1901); *Westerfelt* (Harper's American Novel series, 1901); *Abner Daniel*, (1902); *The Substitute*, (1903); *The Georgians*, (1904); *Pole Baker*, (1905); *Ann Boyd*, (1906); *Mam' Lindy*, (1907); *Gilbert Neal* (1908); *The Redemption of Kenneth Galt*, (1909); *Dieie Hart*, (1910); *Jane Dawson*, (1911); *Paul Rundel*, (1912); *The Desired Woman*, (1913); *The New Clarion*, (1914); *The Inner Law*, (1915); *Second Choice*, (1916).

HARBOES. See DOCKS AND HARBORS.

HARRIS, ROBERT. Canadian painter, died at Montreal, February 27. From 1893 to 1906 he was president of the Royal Canadian Academy. He was born in Wales in 1849 and taken in childhood to Prince Edward Island. He studied in London and on the continent of Europe, and settled in Montreal where he was director of the art school from 1883 to 1887. His works include many paintings from Canadian life and also portraits of prominent Canadians. He received prizes and awards from several exhibitions.

HARRISON, THOMAS SKELTON. Manufacturer and philanthropist, died in Philadelphia, Pa., May 2. He was born on Sept. 19, 1837 and served in the United States navy during the Civil War, after which he became a member of the firm of Harrison Bros. and Co. in Philadelphia. He was president of it from 1899 to 1902. Meanwhile he had served as a diplomatic agent and consul-general to Egypt (1897). He was prominent in the political reform movement of Philadelphia and a member of the command of Fifty and also of that of One Hundred (1913). He held a prominent place in various important patriotic and other societies.

HARTMANN, Cardinal FELIX VON. German archbishop, died at Cologne, November 11. He had been a prominent figure during the war. He was born at Münster, Westphalia, Dec. 15, 1851. He was made a cardinal on May 25, 1914. In the early days of the war he issued a pastoral letter calling upon Catholics to pray for peace, which caused some adverse criticism in Germany. In 1915 he represented Germany at the Vatican where it was thought that he was making proposals for peace. In 1916 as one of the leaders of the Pan-German element, he visited the western front and informed the emperor that all Catholics among the soldiers were ready for further sacrifices. In the spring of 1918 he requested the Allies not to attack Cologne from the air during Corpus Christi day, and the city was not molested.

HARVARD GLEE CLUB. See MUSIC, Choral Societies.

HARVARD UNIVERSITY. A non-sectarian institution of learning at Cambridge, Mass. The enrollment in the summer schools of 1919 was as follows: School of Arts and Sciences,

2376; Graduate School of Medicine, 316; total 2692. The enrollment in the fall was as follows: the college, 2534; Graduate School of Arts and Sciences, 531; Special Students, 68; Engineering School, 126; Graduate School of Business Administration, 394; School of Architecture, 38; School of Landscape Architecture, 27; Bussey Institution, 10; Divinity School, 58; Law School, 879; Medical School, 419; Dental School, 189; total, 5273. There is also a registration of 37 in the School for Health Officers. The grand total, with deductions for duplication, is therefore 7342. The number of members of the teaching staff is 782, and the total number of officers of instruction and administration is 969. The productive funds of the university as of June 30, 1918, were \$33,742,954; they were in December, 1919, estimated to be about \$45,000,000. The income on these funds in 1917-18 was \$1,664,153; this year it will be well over two million dollars. This large increase is caused by the raising of the Harvard Endowment Fund, which began Oct. 1, 1919, the goal being \$15,250,000. The bulk of this will go to increasing the salaries of the teachers at the university. By the end of 1919 about \$11,000,000 had been raised in this campaign. On July 1, 1919, the College Library contained 1,176,500 volumes; there are in addition, 11 departmental libraries, bringing the grand total to 1,940,600. During the year there was established an Artillery Reserve Officers' Training Corps. Arrangements have been made so that men can belong to this while they are students in Harvard College. The military courses will count toward the degree in the College. Each man, to qualify for recommendation for a commission, must satisfactorily pass four of these courses, and also do a certain amount of practical work, and attend at least one summer camp. The unit supplants the Infantry R. O. T. C. established in 1916. A system of compulsory athletic training for Freshmen was instituted. The aim is to get men into enjoyable athletic games three times a week, with an instructor to teach the games the men may enjoy in after life. Harvard was founded in 1636. President, Abbott Lawrence Lowell, LL.D., Ph.D.

HAVERFORD COLLEGE. An educational institution under the control of the Society of Friends, located at Haverford, Pa. In 1919 there were 200 undergraduate students, and 25 members of the faculty. Endowment, \$2,733,029. The library contains 79,167 volumes. In September, 1919, the Isaac Sharpless Science Hall, for physics and biology, was opened for use. Haverford was founded in 1833. President, William Wistar Comfort, Ph.D., Litt.D., LL.D.

HAWAII. POPULATION. The total population of the Hawaiian Islands was 191,909 in 1910. The estimated population including that of the army and navy on June 30, 1919 was 263,666. The population of Honolulu, the capital, was estimated at 78,200. The population by races was distributed according to race on June 30, 1919 as follows: Japanese, 110,000; Hawaiian, 22,600; part Hawaiian, 16,660; Portuguese, 25,000; Chinese, 22,600; Filipinos, 22,000; Porto Rican, 5400; Spanish, 2400; other Caucasian races, 31,000; of others, 5806. The birth rate per 1000 was 34.76. The total number of deaths was 4051. The total number of steerage arrivals was 7435 as against 7321 the year before and the number of departures was 7401 as against 8885 the year before. The number of lepers living at the leper settlements during the year was 669.

AGRICULTURE. The two main crops of the island continued to be sugar and pineapples. The yield of sugar for 1919 was placed at 600,000 tons and that of pineapples at 5,000,000 cases. The greater part of the land best suited to agriculture is in parts of the territory deficient in rainfall. This has made a large irrigation necessary and justifies the heavy expenditures on that account in recent years. Extensive irrigation systems have been developed on the four main islands and without them the larger plantations could not exist. Along with the rest of the United States, the territory felt seriously the high cost of living. The policy of home production of food stuffs begun during the war, and the lessons of thrift inculcated at that time tended to relieve the situation. The high wages paid called out an adequate supply of labor. During the year five new forest reserves were proclaimed by the governor, including a large part of the forest land which remained for allotment. There were at that time 74 forest reserves with a total area of 818,730 acres of which 68 per cent was government land. The planting of trees continued to be encouraged throughout the year and operations were carried on in several different localities of the country. During the year 552 homestead lands covering an area of 8877 acres were taken up. The Hawaiians received the largest share.

COMMERCE. The imports for the fiscal year of 1919 were \$50,743,793 and for the fiscal year 1918 \$51,801,204. The exports amounted to \$88,250,021 as compared with \$80,546,606 in 1918. The following tables show the imports and exports by countries for the fiscal years 1918-1919 and the domestic exports by articles for the fiscal years 1918-1919:

Countries	Imports		Exports	
	1918	1919	1918	1919
Australia	\$118,448	\$138,289	\$20,284	\$36,141
Other British Oceania	71,974	67,914	161,923	106,720
British India	834,512	1,372,469	.....	.....
Canada	345,340	431,760	88,856	3,975,849
Chile	1,001,089	871,828	.....	.....
France	4,304	1,822	.....	.....
Germany	6,064	1,535	.....	.....
Hongkong	385,011	465,209	11,125	7,485
Japan	3,672,468	4,558,499	626,624	548,758
United Kingdom	68,991	47,095	196	1,114
Other foreign .....	.....	366,404	242,210	164,840
Total foreign	6,797,048	8,322,319	1,151,218	5,840,907
United States	45,004,156	42,421,474	79,395,388	82,409,114
Grand total	51,801,204	50,743,793	80,546,606	88,250,021

The following table shows the domestic exports by articles for the fiscal years 1918-19:

Jan. 30, 1918, was \$711,577; the cash balance on Jan. 30, 1919, \$442,610. The total bonded debt

Articles	United	States, 1919	Foreign, 1919 *	Value
	Quantity Pounds		Quantity Pounds	
Sugar	1,097,540,707	\$64,557,857	70,054,101	\$3,939,432
Coffee: Raw	6,417,524	1,008,842	1,221,696	180,806
Fruits and nuts †		12,055,579		60,765
Rice	1,497,020	131,594	4,900	356
Hides	1,643,515	337,611		
Other		3,969,407		1,654,476
Total		\$82,055,390		\$5,835,835

Articles	Total,	1919	Value	Total, 1918	Value
	Quantity Pounds			Quantity Pounds	
Sugar	1,167,594,808	\$68,497,289		1,080,928,593	\$64,109,967
Coffee: Raw	7,639,220	1,184,148		3,206,022	466,689
Fruits and nuts †		12,116,844			8,640,838
Rice	1,501,920	131,950		1,247,731	84,813
Hides	1,643,515	337,611		1,734,319	398,719
Other		5,623,883			6,786,516
Total		\$87,891,225			\$80,487,542

* For fiscal years ending March 31. † Mostly pineapples.

TRANSPORTATION. The gross tonnage of vessels arriving during the fiscal year was 3,460,205 as compared with 3,800,949 for the year before. Throughout the year there was a serious congestion in passenger traffic and there were frequent long delays in freight and mail deliveries on account of the large number of vessels engaged in war service in the Atlantic. Four steamers were plying between the island and the mainland, three of the larger steamers of the company engaged in this traffic being retained by the government in the war zone. Before the close of the year some of the freight vessels were returned to the Hawaiian service. Other traffic is in the hands of the Chinese Mail Steamship Company, the Pacific Mail Steamship Company, the Oceanic Steamship Company, a Japanese Company and others. Most of the inter-island traffic is in the hands of Inter-island Steam Navigation Company. There is only one railway system in the territory. During 1919 the number of passengers was 14,304,489, a considerable decrease from the previous year.

EDUCATION. There were 168 public schools with 36,102 pupils, an increase of 5.1 per cent from the previous year. The pupils of all races in public and private schools numbered 43,271 as against 41,644 for the previous year. The number of private schools was 61 with 370 teachers and a total attendance of 7169. The cost of the general maintenance of schools during the fiscal year of 1919 was \$1,206,924 and the cost of new buildings was \$167,910. At the beginning of 1918 nearly all the men of the College of Hawaii were enrolled in the Students Army Training Corps. After the war the total registration was 145, of whom the majority came from the Island of Oahu. There are two industrial schools in the territory and they receive and care for all juvenile delinquents who are not put on probation.

FINANCE. The assessable property of the territory for the fiscal year 1919 amounted to \$250,524,346 as compared with \$235,650,967 in 1918. The cash on hand July 1, 1919, was \$442,610. The total revenue collected during the year amounted to \$7,921,672; the total expenditures \$8,633,189 and the cash balance on hand,

in January, 1919, was \$9,194,000, as compared with \$8,749,000 the year before. The territory is permitted to issue bonds not to exceed 7 per cent of the total assessed value of the property of the territory and no more than 1 per cent in any one year. At its 1919 session the legislature provided for a bond issue of \$2,231,000.

LEGISLATION. The following report as to the general work of the legislative session was made by the governor: The principal business enacted by the legislature at the session of 1919 was financial. Of the 242 acts approved, 94 involved money from the general fund. In addition the legislature enacted a loan bill providing for public improvements to the amount of \$4,901,698, more than half of which is for wharf and harbor improvements. Concurrent resolutions were also adopted recommending that the governor set aside lands for nine public parks. Certain members of the 1919 legislature, by going back on their pledge to support woman suffrage, earned the ill will of a large majority of the people, and as a result the legislature received little credit for any good legislation.

NATIONAL GUARD. The following report as to the National Guard was submitted by the governor: Prospects for a small, but exceedingly efficient National Guard were good. The discharge of officers and enlisted men of the First Hawaiian Infantry, United States army, made available a considerable number of well-trained officers and men. Schools for officers and enlisted men in Honolulu were being conducted once a week under the supervision of an officer, inspector-instructor, and a sergeant-instructor from the United States army, and in Hawaii by the battalion commander; this work was in addition to company drills, and is done on schedules approved by the commanding general, Hawaiian Department. The First Separate Company of Engineers, Company B, Signal Corps, and First Separate Troop of Cavalry were disbanded by orders, dated Oct. 11, 1918, upon the approval of the Secretary of War. Considerable gallery and target practice was had during the year as a part of the schedule of instruction for the companies organized and under organization. The strength of the National Guard of

Hawaii, June 30, 1919, was: Officers, 26; enlisted men, 688.

GENERAL CONDITIONS. Throughout the country the conditions during the fiscal year 1919 were reported as generally good. On Aug. 20, 1919 the act enforcing prohibition went into effect in the territory. During the fiscal year of 1919 under the new régime it was reported that there had been a remarkable decrease in crime. The act was administered partly by territorial officials because the dealing in intoxicants for sacramental, medicinal and scientific purposes was carried on under the rules and regulations decreed by the governor. No liquor except for these purposes may be sold within the territory. Nevertheless it was reported that a large amount of illicit liquor was manufactured which according to physicians was of a very low grade and frequently contained poisonous elements. The Federal officials were endeavoring to stamp out the trade. Various harbor improvements were projected in the course of the year. On Aug. 21, 1919, the Secretary of the Navy opened the new concrete dry-dock at Pearl Harbor in the Island of Oahu (see DOCKS AND HARBORS). The election laws were amended in 1919 so that general elections of the counties and of the city and county of Honolulu would be held on the first Tuesday after the first Monday in June, 1919.

TERRITORIAL OFFICIALS. Some of the more important public officials were: C. J. McCarthy, Governor; C. P. Iaukea, Secretary; Harry Irwin, Attorney-General; Delbert E. Mitzger, Treasurer; C. J. Bailey, Commissioner of Public Lands; Lyman A. Bigelow, Superintendent of Public Works; Vaughan MacCaughy, Superintendent of Public Instruction; J. K. Kalamianaoale, Delegate to Congress. See **WORKMEN'S COMPENSATION.**

HAY. The Department of Agriculture estimated the hay crop of the United States at 108,666,000 tons, of which 17,340,000 tons were wild hay and 91,326,000 tons tame hay. The season of 1919 was exceptionally good for hay production despite the drouths which prevailed in certain sections and the yields of tame hay as well as of tame and wild hay combined were the largest ever recorded.

The area in hay in 1919 was 72,034,000 acres, of which 56,348,000 acres were in tame hay and both these figures were never surpassed. The average yield per acre of all hay was 1.51 tons and for the tame hay and wild hay 1.62 tons and 1.11 tons, respectively. The average farm price for all hay on December 1st was \$19.59 per ton and at this rate the total production was valued at \$2,129,087,000. The corresponding price for tame hay was \$20.15 and for wild hay \$16.67. While some wild grass is cut for hay in every State in the Union, the largest producing States are South Dakota, Nebraska, Minnesota, North Dakota, and Iowa. In South Dakota the yield of wild hay amounts to more than 3,250,000 tons.

Grains cut green for hay, a practice in vogue largely on the Pacific Coast and in some sections of the South, constitute about 6 per cent of the hay crop. Clover and timothy grown singly or mixed make up more than half of the tame hay produced. Of the tame hay crop in Ohio and Indiana 92 per cent is clover and timothy, in Pennsylvania, Maryland, and Michigan 88 per cent and in Iowa and Maine 86 per cent.

HAZEN, JOHN VOSE. Educator, died at Hanover, N. H., October 2. He was born at Ralston, Mass., Nov. 22, 1850, and graduated at Dartmouth College where he took the degree of civil engineer. He was professor of civil engineering at Dartmouth after August, 1878.

HEALTH INSURANCE. See **SOCIAL INSURANCE.**

HEARST, Mrs. PHOEBE APPERSON. Philanthropist and widow of United States Senator George Hearst and the mother of William Randolph Hearst, died at Pleasanton, Cal., April 13. She was born Dec. 3, 1842. For many years she was prominent in philanthropy, especially in connection with educational work. She maintained a kindergarten school in San Francisco and maintained a school for kindergarten teachers at Washington. She contributed to the building of schools and libraries and she built and equipped a building at the University of California in memory of her husband.

HEGEMAN, JOHN ROGERS. Financier, died at Mamaroneck, N. Y., April 6. He was born in Brooklyn, N. Y., Apr. 18, 1844, and became an accountant for the Manhattan Life Insurance Company in 1862. He rose rapidly in his business and was president of the Metropolitan Life Insurance Company after October, 1891. He was also director of other important financial institutions.

HEINRICH, JULIA. An American concert soprano, died at Hammond, La., September 18 (accidentally killed by a train). She was born about 1890, and was one of the most promising of the younger artists. During 1914-15 she was singing at the Metropolitan Opera House.

HEINZ, HENRY JOHN. Manufacturer, died at Pittsburgh, Pa., May 14. He was widely known as the leading member of the pickle firm of H. J. Heinz Co. He was born at Pittsburgh, Oct. 11, 1844, and began business in the packing industry at Sharpsburg, Pa., in 1869, but soon removed to Pittsburgh, and began the manufacture of pickles. His business expanded rapidly and in 1906 it was organized as a corporation. Many branches were established in this country and in all parts of the world.

HELICOPTER. See **AERONAUTICS.**

HELIGOLAND. A fortified island in the North Sea, ceded by England to Germany in 1890. By the terms of the treaty (see **WAR OF THE NATIONS**), Germany was required to dismantle it. In November the dismantling of the batteries was going on, pursuant to the provisions of the Peace Treaty. Several hundred workmen were engaged and the work was almost completed. At the beginning of the war the people were expelled at six hours' notice and sent to Hamburg and Altona where they were kept under police supervision. Upon their return they found their houses occupied by German officers.

HELIUM. See **CHEMISTRY, INDUSTRIAL.**

HELM, HARVEY. Congressman, died at Columbus, Miss., March 3. He was born at Danville, Ky., graduated at the Central University of Kentucky, and was admitted to the bar in 1890. He was County Attorney of Lincoln County, Kentucky, from 1897 to 1904 and he was a member of Congress from 1907 to 1919.

HENDERSON, CHARLES ENGLISH. Railway official and philanthropist, died at Easton, Md., April 8. He was born in Jefferson County, Va.,

Sept. 28, 1844, and after studying medicine in the University of Pennsylvania, practiced at Baltimore, Md., but in 1870 he entered the railway service as a clerk at the Fort Scott station on the Missouri River. He rose rapidly in the service and was made general manager and receiver of the Atchinson and Nebraska Railway in 1881. From that time on he successively held the position of general manager in many important roads.

HENRY, EDWARD LAMSON. Painter, died at Ellenville, N. Y., May 9. He was born at Charlestown, S. C., Jan. 18, 1841. He became an associate of the National Academy in 1867 and subsequently won medals for his work at several exhibitions. His paintings included especially interiors of early New England life.

HERBERT, HILARY ABNER. Former secretary of the navy, died at Tampa, Fla., March 6. He was born at Laurensville, S. C., Mar. 12, 1834, and studied at the University of Virginia. He was admitted to the bar and practiced law at Greenville, Ala., from 1857 to 1872 but meanwhile served in the Alabama volunteers during the Civil War. He was a member of Congress from Alabama from 1877 to 1893. President Cleveland appointed him Secretary of the Navy, which office he held from 1893 to 1897 after which he practiced law at Washington, D. C.

HEREDITY. See ZOOLOGY.

HERTLING, COUNT VON. Former German Imperial Chancellor, died in Bavaria January 4. He had been Chancellor of the Empire only three months before—the seventh holder of that office and the last but one; born at Darmstadt in 1843. In his youth he had shown marked ultramontane tendencies. He began his career as a teacher at Bonn, and in 1880 he became professor of philosophy in Munich. Meanwhile he had served for several years as a member of the Reichstag, always on the side of the Roman Catholics, and an opponent of every phase of liberalism, and he won his way to the leadership of the Roman Catholic Centre. In 1912 he became minister-president of Bavaria. During the chancellorship of Bethmann-Hollweg he did much to undermine his influence by his opposition to any measure of reform. The Kaiser offered him the post of Chancellor on July 13, 1917, without consulting Bethmann-Hollweg, but Hertling refused, and the office was bestowed upon the Prussian official Herr Michaelis. Upon the failure of the Michaelis's administration on Nov. 1, 1917, Hertling was appointed Chancellor. From the first he managed the situation with skill, placating the Reichstag by certain concessions which were, however, more apparent than real, and bringing a certain measure of stability into affairs, and his position was strengthened by the fact that at that time the German armies were successful, for it was the period of the invasion of Italy and the collapse of Russia. As to foreign policy he seemed to keep himself in the background, leaving the responsibility to Herr von Kühlmann, who negotiated the treaties of Brest-Litovsk and Bucharest, and incurred whatever odium was attached to these treaties by liberal minds in Germany. Kühlmann made his famous speech in June in regard to the impossibility of ending the war by merely military means, and not long afterwards he was dropped. Admiral von Hintze succeeded him as foreign secretary, and proved a failure, though by that time conditions were

such as not to admit of success, as Germany was fast on her way to defeat. When Bulgaria capitulated at the end of September, Hertling was driven from office and succeeded by Prince Max of Baden who set forth a democratic programme. In his last speech Hertling attributed the discontent in Germany exclusively to the military reverses. He declared, however, that the German people would stand firm and not beg for mercy; that the iron wall on the western front would not be broken; that the U-boat war was slowly tending to success, and gradually would restrict the reinforcements from the United States; and that the hour would come when the enemy would see reason and be ready to make an end of war.

HERZEGOVINA. See BOSNIA AND HERZEGOVINA.

HESSE. One of the states of the former German Empire; a grand duchy situated in the western part of Germany. Capital, Darmstadt. Total area, 2968 square miles; population (Dec. 1, 1910), 1,282,051. In common with the other states of Germany it overthrew its government under the revolutionary movement at the close of the year 1918. The work of drafting a constitution was begun in the following spring. The new Diet was elected in January, 1919, composed of 31 Majority Socialists, 13 Democrats, 13 Catholics of the Centre, 7 German People's Party, 5 Hessian People's Party, and one Independent. A new ministry was appointed Feb. 21, 1919 under the premiership of Herr Ulrich. See GERMANY.

HETCHY DAM. See DAMS.

HIDES. See LEATHER.

HIGGINS, EDWARD. Consul, died at Bahia, Brazil, November 18. He was born at Boston, Mass., May 13, 1856; studied theology and became a preacher and lecturer 1881-1903. In the latter year he was appointed consul at Berne, next at Stuttgart, 1907-1916, and finally at Bahia, Brazil, 1916, to the time of his death.

HIGGINSON, HENRY LEE. Boston philanthropist and banker, died at Cambridge, Mass., November 14. He was especially known as a patron of music, being a founder of the Boston Symphony Orchestra. He was born in New York City, Nov. 18, 1834, and studied at Harvard. He went to Vienna and studied music, but entered the Civil War and became major in the First Massachusetts Cavalry. He was severely wounded in Virginia in June, 1863. After Jan. 1, 1868, he was a member of a well-known firm of bankers and brokers in Boston and he became an official or director of many important commercial institutions. He was a trustee of Harvard University, and the founder of the Harvard Union.

HIGH SCHOOLS. See EDUCATION.

HILLS-JOHNES, Lieutenant, Sir JAMES. British soldier, oldest wearer of the Victoria Cross, died in Wales, January 3. He was born Aug. 20, 1833, the son of an officer in the Indian service, passed his early life in Scotland, was commissioned in the Bengal artillery June 11, 1853, and served with a horse battery during the Indian Mutiny. He fought in the siege of Delhi, at Lucknow, and in other important engagements, displaying extraordinary bravery, and served in 1867 in command of the expedition to Abyssinia. During the Afghan war (1878) he was Assistant Adjutant-General of the Kandahar field forces, accompanied Lord

Roberts's column to Kabul, where he was made military governor, and did noteworthy work in northern Afghanistan in 1880. He was promoted to the rank of major-general after the war, receiving the thanks of Parliament. He retired in 1888.

HINDS, ASHER CROSBY. Congressman and writer on parliamentary law, died at Washington, D. C., May 2. He was born at Benton, Me., Feb. 6, 1863, graduated at Colby College 1883, and then went into newspaper work in Portland, Me. In 1889 he was made speaker's clerk of the House of Representatives and from 1895 to 1911 was parliamentary clerk. He compiled the following works: *Rules, Manual and Digest of House of Representatives*; *Parliamentary Precedents of the House of Representatives*, (1889); *Precedents of the House of Representatives*, (1908).

HISTORICAL ASSOCIATION, AMERICAN. A national organization for the promotion of historical studies. The 34th annual meeting, which was not held last year due to the health conditions at that time, was held in Cleveland, Ohio, Dec. 29-31, 1919. Other organizations that held joint conferences with this association at that time were: Mississippi Valley Historical Association, National Association of State War Historical Organizations, Agricultural History Society, American Association of University Professors, Political Science Association. Many subjects of present day interest were discussed. The officers in 1919 were: President, William Roscoe Thayer; first vice-president, Edward Channing; second vice-president, Jean Jules Jusserand; secretary, Waldo G. Leland, and treasurer, Charles Moore. Headquarters of the association are in the Woodward Building, Washington, D. C.

HISTORY. See LITERATURE, AMERICAN and ENGLISH.

HITCHCOCK, CHARLES HENRY. Geologist, died at Honolulu, November 7. He was born at Amherst, Mass., Aug. 23, 1836, graduated at Amherst College 1856, and after pursuing theological courses entered the Royal School of Mines, London. He was professor of geology and mineralogy at Dartmouth College, 1868 to 1908, and lectured during that period at other institutions as well as served as State Geologist of Maine 1861-2, and of New Hampshire 1868-78. In the winter of 1870-1 he headed the expedition which occupied the Mt. Washington Observatory, the first high mountain observatory in the U. S. He was best known as compiler of geological maps of the United States, and for researches in ichnology, geology of the crystalline schists, and glacial geology. He wrote 150 reports, pamphlets, etc., on geology, besides a textbook on elementary geology (1861); *Mt. Washington in the Winter*, (1871); *Report on the Geology of New Hampshire*, (1873-8); *Geological Map of the United States*, (1881), and *Hawaii and its Volcanoes*, (1909).

HOCKEY. Very little hockey was played in the United States in 1919 as compared with other recent years as the rink accommodations were inadequate. The matches for the Stanley Cup, emblematic of the world's championship were contested at Seattle, Wash., and resulted in a tie between the Seattle team and Les Canadiens of Montreal, Canada. Each team won two games and lost two while one contest was a tie. An outbreak of influenza forced several of

the players into hospitals and it was impossible to continue the series. The results of the games played follow: Seattle 7, Les Canadiens 0; Les Canadiens 4, Seattle 2; Seattle 7, Canadiens 2; Seattle 0, Les Canadiens 0; Les Canadiens 4, Seattle 3.

A few college games were played during the year but the Intercollegiate League again failed to conduct a series. Erasmus Hall High School for the second year in succession won the Public School Athletic League championship of New York City.

HODGE, HENRY WILSON. Civil engineer, died in New York City, December 21. He was born at Washington D. C., Apr. 14, 1865, and educated at the Rensselaer Polytechnic Institute. He constructed some of the largest buildings in New York City, including the Singer, the Woolworth, the Bankers' Trust Company and the Cunard buildings, the last-named being under construction in 1919. He was also among the most prominent American bridge-builders. He designed the municipal bridge over the Mississippi River, the Great Northern railroad bridge at St. Louis, and a large number of important railway bridges including the cantilever bridges over the Monongahela and Ohio Rivers, the former being the largest railroad bridge in the United States. He was engineer for the city of New York in the building of the Melrose Avenue viaduct bridge, the Blackwell's Island Bridge, and the Manhattan Suspension Bridge, over the East River. He served during the war on the staff of General Pershing as director of military railroads and bridges in France, where he was instrumental in the building of a system of docks at various ports and of railroads leading from American bases toward the front. He was member of important engineering associations in this country and abroad.

HODGES, GEORGE. Clergyman and author, died at Boston, Mass., May 27. He was born at Rome, N. Y., Oct. 6, 1856; graduated at Hamilton College in 1877, and was ordained deacon in 1881 and priest in 1882. He was rector in Pittsburgh, Pa., from 1889 to 1894, and after that up to the time of his death was dean of the Episcopal Theological School at Cambridge, Mass. He was a prolific writer and the list of his books is as follows: *The Episcopal Church*, (1889); *Christianity between Sundays*, (1892); *The Heresy of Cain*, (1894); *In This Present World*, (1896); *Faith and Social Service*, (1896); *The Battles of Peace*, (1897); *The Path of Life*, (1899); *William Penn* (Riverside Biographical Series, 1900); *Fountains Abbey*, (1904); *The Human Nature of the Saints*, (1904); *When the King Came*, (1904); *The Cross and Passion*, (1904); *Three Hundred Years of the Episcopal Church in America*, (1906); *The Administration of an Institutional Church*, (1906); *The Happy Family*, (1906); *The Pursuit of Happiness*, (1906); *The Year of Grace*, (1906); *Holderness*, (1907); *The Apprenticeship of Washington*, (1909); *The Garden of Eden*, (1909); *The Training of Children in Religion*, (1910); *A Child's Guide to the Bible*, (1911); *Everyman's Religion*, (1911); *Saints and Heroes*, (1911); *Class Book of Old Testament History*, (1914); *The Early Church*, (1914); *Henry Codman Potter, Seventh Bishop of New York*, (1915); *Religion in a World at War*, (1917).

HOFMANN, JOSEF. See MUSIC, ARTISTS, INSTRUMENTALISTS.

HOGBOMITE. See MINERALOGY.

HOGS. See LIVE STOCK.

HOGS, FEEDING GARBAGE TO. See GARBAGE.

HOLDEN, Sir EDWARD. British financier, died in August. He made his success in establishing on its present basis the important Joint City and Midland Bank of London, and he was member of the French and British Commission in 1915 which visited the United States and organized the Anglo-French loan. He was born May 11, 1848, near Manchester, England; was member of Parliament from 1906 to 1910, and was chairman of the London Joint City and Midland Bank.

HOLLAND. See NETHERLANDS.

HOLLYER, SAMUEL. British-American engraver, died in New York City, December 29. He was born in London in 1825 and came to the United States in 1851. He belonged to the old school of engravers and his first signed work was said to date from 1842. From that time on he worked at engraving, etching and mezzotints, and also engaged in photography and lithography. Some of his plates were well known, especially "The Flaw in the Title," "Charles Dickens in His Study," and the "Gleaners."

HOLY CROSS, COLLEGE OF THE. An educational institution for men, conducted under the direction of the Society of Jesus, a religious order of the Roman Catholic Church at Worcester, Mass. The library contains about 45,000 volumes. It was founded in 1843. President, Rev. James J. Carlin, S.J.

HOME DEMONSTRATION WORK. See AGRICULTURAL EXTENSION WORK.

HOMER, WILLIAM J. Prison warden, died at Glens Falls, N. Y., October 5. He was born at Elmira, N. Y., Feb. 1, 1869, and entered the employ of the Erie R. R. in the passenger department and was afterwards engaged in the manufacture of boxes and shipping cases in Elmira. On July 17th, he was appointed warden of Great Meadow prison where he introduced a number of distinctive features, such as the honor system, the reduction of guards to a minimum, and the requiring of no factory work. He was one of the well-known penologists of the country.

HOME RULE. See GREAT BRITAIN, *History*.

HONDURAS. A Central American republic. Capital, Tegucigalpa.

AREA, POPULATION, ETC. The area is estimated at about 44,275 square miles and the population according to the census of 1916 was 613,458 but this was regarded as only approximate. The inhabitants are for the most part Indians with an admixture of Spanish blood. Tegucigalpa, the capital and also the largest city, had in 1914, 28,950 inhabitants. Primary education is free and nominally compulsory between the years of seven and 15. In 1917 there were 925 schools (584 public), and in 1918 the children of school age numbered 80,158. There are also a central university at the capital and several technical and special schools. A central teacher's academy was opened at the capital on June 9th.

PRODUCTION AND COMMERCE. The chief crop in point of commercial value is bananas, which are grown chiefly on the Caribbean coast. Coconuts are also raised in that region. Corn

is the staple food crop. Other products are rubber, coffee, tobacco, beans, rice, wheat, millet, sugar cane, yucca, and indigo. The foreign trade of Honduras in 1918 was estimated at \$10,518,100 as compared with \$11,646,600 in 1917. In the year 1918-1917 the imports according to British authority were valued at £1,258,632 and the exports at £1,070,690. In respect to foreign trade, the United States holds the leading place and supplies four-fifths of the imports, the average value being from \$4,000,000 to \$6,000,000.

RAILWAYS. The railways in operation had a mileage of about 360, the chief line being the National which runs from Puerto Cortes to Potrillos. A new line from a point east of Puerto Cortes, namely the port of Tela, running to El Progreso, was completed in 1918 and a line was under construction in 1919 to connect Trujillo with Juticalpa and the capital.

FINANCE. The receipts in 1917-18, 4,805,781 pesos, a falling off of 801,678 since 1916-17; expenditures 1917-18, 5,423,073 pesos. The Budget estimates for the year 1919-1920 made the receipts and expenditures balance at 6,482,487 pesos. The expenditures were distributed as follows: Department of Home Government, 841,929; Justice, 230,559; Foreign Relations, 256,823; Public Instruction, 600,895; Fomento, Public Works and Agriculture, 969,055; War and Marine, 1,997,920; Finance, 521,306; Public Credit, 100,000; National Railway, 534,000, and Public Highways, 430,000. The legal standard of value is silver and the monetary unit is the peso which had a value on Dec. 31, 1919, of .9271. On Aug. 8, 1918, United States coin and paper currency were made by presidential decree the legal tender throughout the country, the rate of exchange being fixed at 200. The chief sources of revenue have been customs and the government monopolies on spirits, tobacco and explosives. The external debt on Dec. 31, 1918 amounted to £5,398,570 and there were arrears of interest on Jan. 1, 1919 amounting to £21,399,382, thus making a total indebtedness of £26,797,952. The internal debt was given on July 1, 1917 at \$3,397,418 (silver dollars).

GOVERNMENT. The legislative power is vested in a congress of deputies consisting of 42 members elected directly for four years. The executive authority is vested in a president elected by popular vote for four years who acts through a Council of Five elected for four years, namely of Foreign Relations, Government and Justice, War, Treasury and Public Credit, Public Works, and Instruction. President for the term 1916-1920, Dr. Francisco Bertrand.

HONGKONG. A crown colony of Great Britain at the mouth of the Canton River off the southeast coast of China. It consists of an island containing about 32 square miles and a strip of land on the mainland (376 square miles); also of about four square miles of the peninsula of Kowloon which lies opposite it on the mainland. Civil population estimated in the middle of 1917, 535,100; of whom the Chinese numbered 521,600. Of the white residents about one-half are British and one-half Portuguese. It is one of the chief centres of Far Eastern trade. Its commerce is mainly with Great Britain which has nearly one-half of the total trade. After Great Britain come India, Australia and the United States. The trade with Great Britain in 1918 was placed at over £5,000,000,000. From the United States the

staple import during the war was flour but the trade was practically suspended during the war. The exports to the United States comprised chiefly breadstuffs, especially rice, tin, various fruits and woods, and wolfram. The articles invoiced at the Consulate-General during the first six months of 1918 amounted to \$24,406,278 and for the first six months of 1919 to \$6,572,623. To the Philippines the exports during the first six months of 1918 were \$3,428,465 and for the first six months of 1919 \$4,442,145. Japanese competition was felt particularly in 1919 in all lines of trade. The exchange value of silver was very high, with the Hongkong dollar at \$715 American gold, in the beginning of the year. At the end of the year it was below the 80-cent point. The general business situation for 1919 was satisfactory. Ship-building, one of the leading industries, turned out 75,000 tons of shipping in 1919, and commenced the construction of other vessels aggregating almost as much more. A large number of smaller local industries were interfered with greatly by a lack of raw materials, which either could not be obtained at all, or were restricted on account of high cost. In 1918 579,541 vessels, of a tonnage of 29,518,180, cleared, which was a decrease from 1917 statistics. Estimated revenue for 1918, \$17,080,000; expenditure, \$15,752,000; for 1919, revenue, \$16,884,000; expenditure, \$14,678,000. In 1917 the tonnage entered was 10,292,772 and tonnage cleared 10,266,435. The executive power is vested in a governor assisted by an executive council; the legislative power in a legislative council, over which the governor presides. Governor for 1919, R. E. Stubbs.

HOOD, JOHN. Naval officer, died at Annapolis, February 11. He was born at Florence, Ala., Dec. 3, 1859, and graduated at the United States Naval Academy in 1879. He became lieutenant in 1895 and lieutenant-commander in 1901. He was on board the *Kearsarge* when it was wrecked in 1894 and on the *Maine* when it was sunk in 1898. During the Spanish-American War he commanded the *Haiak* which carried information of the arrival of the Spanish squadron at Santiago. Among his other important duties was the survey for the Pacific cable, 1899-1900, and he served in Chinese waters during the Russo-Japanese war. In 1911-12 he commanded the *Delacare* in the Atlantic Fleet and won the pennant for battle efficiency. He was a member of the General Navy Board 1912-15 and commanded the *Texas* in the Atlantic Fleet 1915-16, winning again the battle efficiency pennant as well as other honors. From 1916 to 1917 he was in command of the reserves and was ordered to the command of the 4th Division when the reserves were mobilized for war, Apr. 6, 1917.

HOPKINS, CYRIL GEORGE. Expert in agricultural chemistry and university professor, died at Gibraltar during the first week of October, news of his death being received October 8. He was born near Chatfield, Minn., on July 2, 1866, and studied at the Agricultural College in Illinois. He afterwards took a graduate course at Grinnell and studied agricultural chemistry in Göttingen 1899-1900. He taught chemistry in the Agricultural College at Brookings, S. D., and at Grinnell in the 1890's, and after 1900 was professor of agronomy in the University of Illinois Agricultural Experiment Station. He invented the Hopkins condenser distilling tube

and limestone tester, and was a member of many important societies within his field of research. He wrote *Soil Fertility and Permanent Agriculture*, (1910); *Story of the Soil*, (1911), and *The Farm That Won't Wear Out*, (1913), besides special bulletins and papers; and he was the agricultural director of the Southern Settlement and Development Organization, 1913-14. When the Red Cross Mission was sent to Greece, he accompanied it as an agricultural expert, and at the time of his death he was making a tour of southern Europe. He was decorated by the King of Greece for distinguished services. He held to the belief that sufficient amounts of nitrogen for farming purposes could be obtained by the proper rotation of crops and he insisted upon what he called a permanent agriculture, meaning thereby that regards should be had not only for immediate results from fertilizers but for a permanent effect upon the land.

HOPKINS, TIGHE. British writer, died in London, England, Feb. 14. He was born Dec. 8, 1856, and besides the following works which were mainly novels he wrote much on penal reform: *Twist Love and Duty* (1886); *For Freedom*, (1888); *Nugents of Carriconna*, (1890); *Incomplete Adventurer*, (1892); *Lady Bonnie's Experiment*, (1895); *Kilmainham Memories*, (1896); *Pepita of the Pagoda* (Arrowsmith's Annual), (1897); *Dungeons of Old Paris*, (1898); *An Idler in Old France*, (1899); *The Silent Gate: A Voyage into Prison*, (1900); *The Man in the Iron Mask*, (1901); *The Women Napoleon Loved*, (1910); *Some Forty Chapters in London Stories*, (1911); *Wards of the State, an Unofficial View of Prison and the Prisoner*, (1913); *Romance of Fraud; Prisoners of War*, (1914); *Romance of Escapes*, (1916); *Your Unsuspected Self*, (1917).

HOPS. The world's hop production in 1919 did not show a very marked recovery from the deranged conditions resulting from the war. In the principal European hop-producing countries the acreage during the war period dropped to less than half of the area in hops for the years immediately preceding the outbreak of hostilities and the average yield per acre also was lower than that secured in normal times.

As reported by the International Institute of Agriculture, Rome, the area in France was about 3200 acres and in England nearly 17,000 acres, a recovery over 1918 of 20 per cent and 7 per cent, respectively, but still under 60 per cent of the normal acreage. According to trade reports the production in Germany was estimated at 65,000 cwts. and in Austria at 100,000 cwts. as compared with a normal production of 350,000 cwts. and 300,000 cwts. respectively. Data published by the Department of Agriculture placed the crop of the United States at 29,346,000 pounds on 23,900 acres, or a yield per acre of 1,227.9 pounds. The corresponding figures for 1918 were 21,481,000 pounds, 25,900 acres and 829.4 pounds respectively.

Largely as a result of laws affecting the manufacture of intoxicating beverages, the acreage has declined rapidly since 1915 when 44,700 acres were grown. In the four States growing hops on a commercial scale the reduction in acreage as compared with the preceding year was made in New York and Washington, while the areas in Oregon and California remained about the same. The international trade in hops was very light during the earlier part of the

year but in the fall a brisk movement resulted from heavy purchases largely by British buyers which raised prices rapidly.

As estimated by the Department of Agriculture the average price to producers had reached 56.6 cents per pound on September 15th and 77.2 cents on December 1st as against 19.3 cents on Dec. 1, 1918. The crop of 1919 at 77.2 cents per pound was valued at \$22,656,000 and the crop of 1918 at 19.3 cents per pound at \$4,150,000. The greater portion of the 1919 crop left the producers' hands before the maximum price was reached. Good prices were reported also from Bohemia due to buying for French and English account.

HORSES. See LIVE STOCK and VETERINARY MEDICINE.

HORTICULTURE. With few exceptions abundant crops of fruit were produced in North America during 1919. Climatic conditions were generally more favorable in the far western fruit districts than in the East. The western New York apple crop was short about four million barrels, and fruit crops were light in Ontario. Nova Scotia produced a bumper apple crop of about 1,500,000 barrels. The California orange crop was short. Total fruit production was quite close to that of 1918. Production in Europe continued below normal but was better than in 1918. Crops were light in the Almeria district of Spain. Italy will be obliged to import most of her olive oil. The harvested Smyrna fig crop was seriously reduced by the burning of the greater part of Aidin and surrounding villages in the heart of the fig district. There was a material reduction in staple vegetable crops both in this country and abroad. The short canned vegetable pack in the United States has been conserved to some extent by previous release to the public of excess army and navy supplies. Labor was more plentiful in the fruit districts, but at higher wages. There was no improvement in the car shortage and distribution was difficult. Export trade, though handicapped by fluctuations in foreign exchange, was active.

Of the commercial vegetable crops in the United States, 357,901,000 bushels of white potatoes were produced in 1919 as compared with 411,860,000 bushels in 1918; sweet potatoes, 103,579,000 bushels as compared with 87,924,000 bushels; dry beans, 11,488,000 bushels as compared with 17,397,000 bushels; onions, 12,833,500 bushels as compared with 19,336,000 bushels; cabbage, 443,400 tons as compared with 684,812 tons; and canned peas, 8,685,000 cases as compared with 11,063,000 cases. The total apple crop was 49,152,000 barrels as compared with 56,637,000 barrels in 1918; peaches, 51,340,000 bushels as compared with 34,133,000 bushels; pears, 13,498,000 bushels as compared with 12,993,000 bushels; and oranges 23,916,000 boxes as compared with 24,200,000 boxes. California shipped over 30,000 cars of fresh deciduous fruits in 1919. California's walnut crop, the largest in the history of the industry, was estimated at 48,000,000 pounds. Hawaii shipped 3,847,315 cases of canned pineapples in 1918, with prospects for a considerable increase in 1919.

EXPORT TRADE. For the fiscal year ended June 30, 1919, the United States exported fruits worth \$69,144,187; vegetables, \$53,513,794; nuts, \$2,148,607, or a total of \$124,806,607 as compared with \$61,445,379 in 1918. The imports

for the same period were fruits, \$25,816,703; vegetables, \$33,687,305; nuts, \$42,515,661, a total of \$102,019,669 as compared with \$107,432,859 in 1918. Exports of nursery stock amounted to \$333,356 as compared with \$260,763 in 1918, and imports of nursery stock to \$2,363,553 as compared with \$3,327,697 in 1918. The export trade was marked by a general increase in shipments at higher prices. Imports of oil-bearing nuts fell off but were more than replaced by increased shipments of \$43,496,543 worth of cocoanut butter as compared with \$30,919,783 in 1918, and \$11,495,849 worth of peanut oil as compared with \$7,311,824 in 1918.

Nurserymen in the United States and abroad were actively engaged in an attempt to secure the repeal of the United States Plant Quarantine Act, which governs the importation of nursery stock, plants, bulbs and seeds as a protection against the introduction of insect pests and plant diseases. The regulations under this act were modified to some extent during the year to facilitate the entry of such classes of plants as were represented by experts to be essential to the floriculture and horticulture of the country under existing conditions. Ample measures were provided, however, to prevent the dissemination of pests and diseases. In order to prevent the introduction of citrus canker the Fruit Commission of Australia has issued a general order prohibiting the importation of oranges from practically all countries except the United States, and then only from California and Arizona. Toward the close of the year Italy raised an embargo on the exportation of chestnuts that has been in force since early in 1915. Spain partially removed restrictions on exports of olive oil but required exporters to duplicate shipments with a home reserve stock under Government control. England limited profits of retail fruit dealers to 33½ per cent.

NEW ORCHARD ENTERPRISES. Quite noticeable during the year were the increased sales of developed orchards in different sections of the United States. Contrary to the boom of a few years ago when many small investors parted with their money in numerous now-forgotten orchard enterprises, most of the present development is of a substantial nature backed up by experienced fruit men and investors. The present tendency is to buy promising orchard properties rather than raw fruit lands. Towering above every other transaction is that of the American Fruit Growers, which concern, incorporated under Delaware Charter on July 7th with an authorized capital stock of \$50,000,000, has already acquired several million dollars' worth of successful orchard properties in the leading fruit regions and has placed them in charge of experienced fruit men, assisted by a general staff of experts in every phase of the business. This corporation, under the leadership of an old and successful Pittsburgh fruit and vegetable commission house, proposes to distribute and market its own produce and to own, as far as possible, such subsidiary enterprises as canning, crate, and fertilizer factories. It is further planned to develop vegetable industries and to maintain a distributing and marketing service for other growers.

CITRUS BY-PRODUCTS. The by-product laboratory of the U. S. Department of Agriculture at Los Angeles has improved existing methods for the manufacture of citrate of lime and citric

acid, and adapted them to California conditions. They are now being used satisfactorily on a large commercial scale. Since this work began, four stable concerns have developed a total annual manufacturing capacity of over 1,500,000 pounds of citric acid, over 500,000 pounds of citrate of lime, and over 50,000 pounds of lemon oil. Methods of producing orange marmalade, jellies, and candied peel have also been developed and manufacturers have been assisted in extending the industry. The total output of orange by-products in 1919 approximated 6,000,000 pounds. Work with frozen oranges has shown that, though unfit for shipment, they are suitable for making marmalade if used promptly near the centre of production. The preparation of pure orange juice has made little headway, but juice of excellent quality can be prepared from grapefruit. Similar investigations are now under way in Florida.

EXPERIMENT STATION WORK. As the result of studies conducted for several years the California Agricultural Experiment Station reported that, for all practical purposes, the cultivated almond is self-sterile, and orchards must be inter-planted with pollinizing varieties if they are to prove commercially profitable. Experiments conducted at the Arizona Experiment Station have shown that many varieties of dates may be harvested and held in dry cold storage (36 to 38° F.) for several months to be sold as fresh fruit, thereby avoiding overstocked markets. Other varieties required partial evaporation to be safely kept in cold storage. The Wisconsin Experiment Station has found, contrary to the frequent advice that the cherry tree should be pruned little if any, that the sour cherry tree thrives best when regularly and often heavily pruned. After reviewing the experimental literature on bud variations among horticultural plants, M. J. Dorsey of the Minnesota Experiment Station concluded that bud variation may affect such important commercial fruit characters as color, season, size, growth, habit, and yield, but that such variations have not been much of a factor in the origin of new varieties in the apple, cherry, plum, or grape. More successful results have been secured among bud variations in citrus fruits, ornamentals, and flowers. After an extensive test, the South Dakota Experiment Station has found that two species of Siberian pear (*Pyrus ussuriensis* and *P. oboidea*) appear to be resistant, both to the blight and the rigorous climate of the Northwest. Seedlings of these species are to be used as stocks for cultivated varieties. Experiments covering several years at the Iowa Experiment Station have shown that the canker on limbs and trunks of apple trees of bearing age, which is known as Illinois blister canker, may be checked by chiseling out the infected wood and painting the entire wood with an antiseptic paint.

In the search for hardy and disease-resistant stocks on which to top-graft some of the less hardy commercial apples, the Iowa Experiment Station finds that the Wealthy and Virginia Crab varieties are valuable as stocks for Jonathan, and the Virginia Crab and Delicious varieties as stocks for Grimes Golden. The Delicious variety, when top-worked on Virginia Crab, comes into bearing earlier and gives a more satisfactory yield than on its own stock. At the Illinois Experiment Station tomato strains have been developed which have proved

highly wilt-resistant, as compared with commercial strains when grown on badly infected soil. The North Dakota Experiment Station has developed sufficiently early maturing strains to make the production of tomatoes practical in that climate. Experiments conducted at the Missouri Botanical Garden for three seasons with tomatoes, string beans, sweet corn, and salvia have shown that electrically stimulated plants make a considerable increase in vegetative and reproductive growth and the date of maturing is hastened. The investigators state, however, that much has yet to be learned relative to the required quantity and intensity of the stimulus, as well as the proper time of application during the life of the plant. Summing up the results of 10 years' work, the Missouri Experiment Station concludes that fall planting of hardy fruits is better than spring planting, and that late fall planting just before the ground freezes is superior to early fall planting. The same station also finds that the alternate-year bearing habit of most apple trees is due to the inability of the individual fruit spurs to mature fruit and at the same time develop a fruiting bud for the following year. Although exceptions to this rule have occurred, it is concluded that varieties which produce regular annual crops, such as Jonathan and Winesap, do so because only a portion of the fruit spurs set fruit in a given year. Removing the blossoms from a tree by accident or design may result in a change in the fruiting year.

PROMISING FRUITS AND PLANTS. Investigations now being conducted by the U. S. Department of Agriculture have thus far shown that the Panariti grape, one of the leading currant grapes of Greece, is adapted to the California raisin districts and that this early ripening grape will produce currants of good quality in the Bay counties where raisin production has not heretofore developed. It has also been found that to secure a large annual production of fruit from the Panariti grape, a narrow band of bark must be removed from the trunk or bearing canes of the vine at the time the vines are in bloom. On vines thus treated, the fruits are large, uniform in character, and ripen evenly. Experiments conducted with the Ohanez grape from Spain indicate that this variety also may be grown on a commercial basis in California for the purpose of replacing the Almeria and other types of long-keeping grapes now imported into this country from Spain and elsewhere. The search for new crops in foreign countries was continued. Twenty-three new and promising avocados have been secured from Guatemala and are now being tested in Florida, California, Hawaii, Porto Rico, and Cuba. The varieties introduced have a wide range as they represent types coming from near sea level up to an altitude of more than 5000 feet. Two avocados were secured from a high altitude in Ecuador which may prove cold resistant. The Department's plant breeders have recently developed a number of everbearing strawberries, as well as large strawberries of good quality that are hardy in the interior of Alaska and a new hardy pillar or low-climbing rose, bearing pure white blossoms with prominent yellow stamens. The Chinese chestnut (*Castanea mollissima*) continues to give promise as a blight-resistant substitute for the doomed American variety.

Several thousand of these young trees are now being grown, also several thousand hybrid chestnuts, with the object of testing them for disease resistance and nut production. Sufficient progress has been made in the growing and testing of bamboos in the South to show that six or seven types are suitable for a wide range of soil and climate and useful for a great variety of purposes. Promising new stocks of pear, apple, peach, cherry, and plum have been assembled from foreign countries, chiefly the Orient. About 75,000 new pear stocks have been distributed to nurserymen and others for test under varying conditions.

INSTITUTIONS, SOCIETIES, ETC. The University of London has added horticulture to its curriculum and will give the degree of Bachelor of Science in Horticulture. A Chamber of Horticulture for Great Britain was formally inaugurated at London, Dec. 2, 1918. The Board of Agriculture and Fisheries of Great Britain recently purchased a farm at Ormskirk, Lancashire, for experimental work with potatoes. At an international conference of horticultural traders held in Paris early in September, to which American representatives were invited but failed to attend, a new association was formed under the title of The International Federation of the Horticultural Trade. Mr. Arthur De Smet is the first president, and M. Turbat (Orleans), secretary. All allied countries will be admitted to the Federation—including the new countries—at a fee of 500 francs a year; neutral countries may be admitted, if they desire, provided the conference agrees. The admission of former enemy countries was left for future consideration. The French National Society of Horticulture resumed its autumn flower and fruit shows after a lapse of five years. The Society held a general exposition and Congress of Horticulture in June. A National Horticultural Society is being formed in the Grand Duchy of Luxemburg under the auspices and with the coöperation of the Luxemburg Department of Agriculture. The Florida Agricultural Experiment Station is to locate a citrus substation at Lake Alfred. Mr. E. H. Wilson, well known for his botanical and horticultural explorations in China, and as a plant introducer, was made assistant director of Arnold Arboretum.

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H. E. Juenemann, *Commercial Dutch-Bulb Culture in the United States*, U. S. D. A. Bulletin No. 797; W. Popenoe, *The Avocado in Guatemala*, U. S. D. A. Bulletin No. 743, and H. P. Gould, *Fig Growing in the South Atlantic and Gulf States*, Farmers' Bulletin No. 1031 (Govt. Printing Office, Washington, 1919).

HOSS, ELIJAH EMBREE. Methodist Episcopal bishop, died at South Muskogee, Okla., April 23. He was born in Washington County, Tenn., April 14, 1849, graduated at Emory and Henry College, Va., in 1869, and was ordained to the Methodist Episcopal ministry in 1870. He was president of Martha Washington College, Virginia, 1876-81; president of Emory and Henry College to 1885, and professor of ecclesiastical history at Vanderbilt University to 1890. He then edited the *Nashville Christian Advocate* until 1902, when he was appointed bishop in the Methodist Episcopal Church, South.

HOURS OF LABOR. See LABOR LEGISLATION.

HOUSE, Colonel EDWARD M. American representative at the Paris Peace Conference. He held no official position at that time, but had long been the confidential representative of the President in the most important issues of his administration. He was born in Texas on July 26, 1858, and at an early age interested himself in State politics. In this he was not actuated by any motive of self-interest and he soon acquired a great reputation in the State for insight and impartiality. He was said to have almost dictatorial power as the result of his influence over the political leaders. He was one of the earliest to see the making of a president in Mr. Wilson, and to press his candidacy. During the period of American neutrality, Colonel House made frequent trips abroad and kept the administration informed as to conditions. In 1918 he created an organization of specialists on European affairs and on all matters pertaining to the war, with the result that the means of obtaining first-hand information were provided for the administration. It was believed that he had played a leading part in 1917 in the movement on unity of command which resulted in the appointment of General Foch as generalissimo. The office of Colonel House at the Hotel Crillon was the clearing house at the beginning of the Conference for all matters pertaining to the American delegation.

HOUSING. One of the most important after-the-war problems with which practically every country has been confronted is that created by a scarcity of housing accommodations. The almost universal lack of sufficient homes has led to an exceptional amount of interest in this problem. Causes of this deficiency in homes in the United States may be attributed to the following causes: "the general paralysis in construction work during the war due to shortage of men and materials; increased cost of labor, land and materials, with an increased cost of maintenance since the signing of the armistice; general inactivity in building circles because many are waiting for prices to drop; higher standards of living demanded by workers, and the return of men who had been in the service abroad." Efforts are being made in nearly all countries to relieve and remedy the situation through government aid and the activities of local organizations.

On the entrance of the United States into

the war, the housing shortage became acute in most of the manufacturing and shipbuilding centres. The cost of labor and materials had caused a decrease in the rate of new construction for some time prior to our entrance and, in addition, war needs required the concentration of war workers in industrial centres. At first several departments of the government attempted to relieve the housing shortage, but it was found necessary to delegate the housing work to the Department of Labor, and in consequence the Bureau of Industrial Housing and Transportation was formed and later the United States Housing Corporation was organized. The Bureau of Industrial Housing and Transportation was created in February, 1918, but its work did not become effective until June. On July 9, 1918, the United States Housing Corporation was formed to meet the housing situation by supplying additional dwellings. It was incorporated under the laws of the State of New York. Mr. Otto M. Eidlitz was made president of the corporation. For its work Congress appropriated \$100,000,000 and the funds became available by the end of July. Upon the signing of the armistice a large part of the corporation's work was halted and only those projects then in an advanced stage were completed. The corporation sought to solve the housing problem in five ways: (1) By making available housing facilities found by careful investigation to exist in or near the particular communities in question; (2) By connecting, through improved transportation, places where labor was needed with places capable of housing it; (3) By encouraging and aiding private capital to build; (4) By aiding in the distribution of labor and the placing of war contracts in such a manner that housing congestion might be avoided or reduced; (5) By construction and operation of houses, apartments, and dormitories. The last named was the principal purpose for which the corporation was created but it was used only as a last resort. Before housing work was undertaken in any community, its great need for housing had to be certified by the Army or Navy Department and then agents of the corporation made a careful survey of the community.

In spite of the efforts to provide adequate housing facilities, the rentals of both rooms and houses advanced materially. The rise was most marked in cities and was due in many instances to profiteering rather than to increased costs in taxes, repairs, service, etc. One of the problems which the Bureau of Industrial Housing and Transportation sought to solve was the prevention of profiteering. To this end, it encouraged the formation of committees on rent profiteering in industrial communities. "These committees, consisting of representatives of organized labor, real estate interests, the legal profession, and the general public, undertook, by democratic methods to investigate and adjust the various difficulties arising between landlords and tenants." Active committees were formed in 76 cities and in 50 other cities the Bureau adjusted complaints brought to its attention through local representative organizations. The local committees have been very successful in preventing rent profiteering. Thousands of cases have been settled to the satisfaction of all in many cities. In Philadelphia, for example, of 1123 cases recorded, 864 were sat-

isfactorily adjusted. In Cleveland, the saving to tenants averaged \$464 per month. The committees have also succeeded in preventing evictions and through their activities indirectly discouraged landlords from attempting to profiteer. In addition their work has furthered necessary repairs and improvements in sanitary conditions.

Although the emphasis of the National Conference of Social Work held at Atlantic City, N. J., June 1st-8th, was on community problems, much interest was manifested in the housing shortage and the problems thus created. Mrs. Eva White of the United States Department of Labor strongly dwelt upon the uplifting effect of good standards of health, housing and recreation. The danger arising from bringing into use unfit, unsanitary dwellings to meet the shortage in accommodations was pointed out in an outline of the housing experience during the war, by Mr. John Ihlder, Secretary of the Pennsylvania Housing and Town Planning Association. Mr. Laurence Veiller, Secretary of the National Housing Association, in a special paper discussed the standards set up by the Federal Government, and a paper discussing the relation of structural arrangement of houses to health was contributed by Dr. James Ford of the United States Housing Corporation.

In spite of the measures taken to relieve the situation, there is still a great scarcity of houses. Chicago, for example, reports that her housing facilities are 20 per cent less than those required by her population; the St. Louis Chamber of Commerce has formed a \$2,000,000 association for the construction of new homes and in San Francisco rent has advanced 50 per cent. It is estimated that 700,000 to 1,000,000 houses are needed in the United States.

FEDERAL LEGISLATION. In order to solve the problem various measures have been introduced in Congress. Senator Calder introduced a bill, known as the "Federal Home Loan Act," which provides for a system of home loan banks. The purpose of this measure is "to make part of the \$2,000,000,000 of assets held by the Building and Loan Associations immediately available for building." Senator Kenyon has introduced a bill which makes provision for the creation of a commission "to investigate and report to Congress a plan on the question involved in the financing of house construction and home ownership and Federal aid therefor." The Sundry Civil Appropriation Bill for the fiscal year ending June 30, 1920, provided for an appropriation of \$3,070,115 for continuing the activities of the United States Housing Corporation. It also provided that, upon the termination of the war, all the property of the corporation be sold at market value and that the corporation wind up its affairs and dissolve. On December 18th, the House unanimously passed a bill introduced by Mr. Clark of Florida, which ordered the sale of housing facilities erected by the government during the war. The bill abolishes the United States Housing Bureau, transferring its property to the treasury for sale to private persons. Great waste and extravagance were charged and criminal prosecution of the officers of the Bureau was considered.

STATE LEGISLATION. North Dakota has entered upon an extensive programme of State aid to home-builders. Early in the year the Legislature enacted a law under which the State

will establish and operate the North Dakota Home Building Association. In order to help inhabitants of the State, \$100,000 has been appropriated to the association. Another bill authorizes an issue of bonds not to exceed \$10,000,000 in amount, to cover first mortgages on real estate which shall have been issued by the Bank of North Dakota. The Home Building Association is to be operated by the State Industrial Commission which is authorized to acquire by purchase, lease, or exercise of the right of eminent domain, all requisite property rights and may construct, repair and remodel buildings. No (dwelling) house may be built, bought or sold at a price greater than \$5000. In July, the Legislature of Wisconsin added a section to its general corporation law making it possible for municipalities to engage in homing and permitting individuals to form corporate housing companies. Under the law such a corporation may acquire land and prepare it for residential use on approval of any public land commission or city planning commission of any locality where the corporation's property is situated. The maximum cost of any dwelling erected by such a corporation is \$5000.

In June the New York Legislature unanimously passed several bills to relieve the housing situation. It is estimated that the Dodge Bill which permits the remodeling of old type houses in New York City will make 70,000 more houses available. The other bills were designed to protect tenants against rapacity and to stimulate building. On December 12th, Governor Coolidge of Massachusetts signed a bill empowering the state commission to investigate rents and to require landlords to produce their books on demand. The law is directly against rent-profiteers. Between August and December the commission adjusted more than 2000 rent complaints.

REFERENCES. *The Public Affair, Information Service, the Monthly Labor Review and Housing Betterment*, a quarterly issued by the National Housing Association, and the *New York Times Index* will give adequate references as to where information on *Housing* and its allied subjects may be found.

ABROAD—ENGLAND. The seriousness of the housing situation in England has resulted in the enactment of government measures, calculated to ameliorate the existing conditions. The keynote of the English situation is sounded by Lloyd George in his statement, "You cannot maintain an A-1 empire on a C-3 population." The housing construction programme provides for an increase in the local tax rate of one penny in the pound. The National Government then lends money to the local government, which, after construction, pays it back as well as it can from the penny in the pound tax and the rents. Provision is made for sanitation and the safeguards against crowded tenement construction. Only eight to 12 houses per acre are permitted, in comparison with 50 per acre at present. It is estimated that during the next few years the government must help build from 600,000 to a million homes at a cost of about 600 pounds each. It is figured that the first 300,000 homes will cost nearly a billion dollars. At the same time, England is encouraging tremendous imports of lumber. During the war the raising of rents was prohibited. Soon after the cessation of hostilities, labor organizations and

housing associations agitated for an extension of the Rent Act. It was estimated that unless this extension was made, seven to eight million houses in the United Kingdom would be affected by a rise in rents ranging from 45 to 100 per cent. Early in the year, an Act of Parliament extended the period of application of the Rent Act, with certain amendments, to the spring of 1921.

CANADA. No effort was made by the Canadian government to carry out a housing programme during the war. Inevitable extravagance was thus avoided. Immediately after the armistice was signed, the Federal and Provincial Governments met to consider the scarcity of housing facilities. On December 3d upon the recommendations of the Privy Council, an order in council was issued granting a loan of \$25,000,000. This loan, administered by five members of the cabinet, was apportioned among the nine Provinces of Canada pro rata to the population. "The money will be lent to the provinces at 5 per cent and will be repayable by them, in most cases, in six equal monthly installments of principal and interest." The Provincial Government of Ontario prior to this action of the Dominion Government, appropriated \$2,000,000 for housing as an addition to whatever Federal loan might be made. The observance of minimum standards formulated by the Ontario Housing Committee is required in all building which is being done under the Ontario Act.

FRANCE. The devastation wrought by the war has made the housing problem a very real one in France. According to the Minister of Liberated Territories, 550,000 buildings are to be rebuilt in the devastated areas. In the vicinity of Paris the shortage is especially acute and plans are being made to construct garden cities under the law of 1912. This law created the public office of Low-cost Dwellings of the Department of the Seine and appropriated 10,000,000 francs (\$1,930,000) for the acquisition of land to serve as sites for such villages in the outskirts of Paris. The French Parliament has authorized the removal of the wall of Paris. This will release 1150 acres of ground. The abolition of the military zone will add 1875 acres, most of which will be used for a new park.

ITALY. On Mar. 23, 1919, a vice regal decree was issued under which aid in the construction of workmen's dwellings may be obtained by the following: The Communes, Workmen's Building and Coöperative Societies, Public Welfare Associations and the National Building and Co-operative Society of Government Employees at Rome. In accordance with this decree, the Deposit and Loan Bank will place 100,000,000 lire (\$19,300,000) at the disposal of the communes and local authorities. When this has been used up further amounts will be provided.

PERU. Under a law enacted Dec. 28, 1918, it is planned to build 100 workmen's houses, to be sold to public employees of over five years' service and who receive ("presumably per month") wages of not more than 15 libras (\$75). The houses will be built according to plans and estimates approved by the executive department. For additional information, see BUILDING, CITY PLANNING, ARCHITECTURE and WELFARE WORK.

HOUSTON, TEXAS. See DOCKS AND HARBOURS.

HUGHES, WILLIAM MAURICE. Australian representative at the Paris Peace Conference. He was at the time of the Conference Prime Minister of the Australian Commonwealth. He was born in London of wealthy parents on Sept. 25, 1864, went to Australia, and taking a part in state politics became a member of the Legislative Assembly of New South Wales in 1894. In 1901 he was elected to the first House of Representatives of the Commonwealth, where he became the leading supporter of Mr. Andrew Fisher, the head of the Australian Labor party. Meanwhile he had practiced law, and he was afterwards chosen Attorney-General in the Fisher cabinet. After the resignation of Mr. Fisher in 1915, he became Prime Minister. He furthered a vigorous policy during the war and encountered considerable opposition. He twice forced the issue of conscription upon the country and in the referendum which was taken on each occasion he was defeated. His own party having partly deserted him, he formed an alliance with the Liberals under Sir Joseph Cook. He represented Australia at the Imperial Conference in England in 1918.

HUNGARY. See AUSTRO-HUNGARY.

HUNTINGTON, CHARLES PRATT. Architect, nephew of the late Collis P. Huntington, died in New York City October 15. He was born at Logansport, Ind., Nov. 22, 1871, graduated at Harvard University in 1893, and studied at the Ecole des Beaux-Arts in Paris, and after 1903 practiced his profession of architect in New York. Among the buildings that he designed in New York may be mentioned the Museum and Library of the Hispanic Society, the Museum for the American Numismatic Society, the Museum of the American Indian, and the building of the American Geographical Society, all in New York City.

HURRICANES. Once again in 1919 the Southern States were visited by a severe tropical storm in the early autumn which left destruction in its path and again emphasized the need of proper protection. The effects were most marked at Galveston and Corpus Christi, Texas.

GALVESTON FLOOD. A tropical hurricane on Sept. 14, 1919, flooded a part of the city of Galveston, Texas, and furnished a severe test for the sea wall which was built after the 1900 disaster. On the south side of the island the sea wall and the accompanying grade elevation prevented such a catastrophe as befell the city in 1900, but the north side of the island, which was yet at the low level, was flooded to a depth of from three to six feet. As the flood was slow in rising and not violent, the damage done was due merely to water soaking. This flood stimulated discussion of the further grade elevation work which was proposed for the north side of the island. On the south side, up to about the east and west centre line of the city, the grade previous to 1919 had been raised to some 21 feet above the sea level, but the north side was still low, and a report made in the spring of 1919 by J. B. Lippincott, consulting engineer, recommended a graduated scheme of improvement which would involve the placing of about 20,000 yards of fill. By doing this the section of the city lying north and west of the sea wall south of the bay and east of 40th Street, exclusive of the railway yards, could be

raised from its present elevation of 6½ feet to an elevation of 15½ feet at the north or bay front, rising with a grade of one foot in 1600 to the south, with an elevation of approximately 21 feet at the south wall.

There was considerable engineering work under construction or completed around the city at the time the hurricane passed, but all of the structures stood the test, and the public utilities operated notwithstanding the storm. Approximately 3300 linear feet of the sea wall extension east of 6th Street was not damaged by the heavy sea coming in from the gulf, and the arch-work under construction at the causeway, together with the old original arch structure, also remained intact. The temporary wagon bridge across Galveston Bay experienced no damage, and the fill back of the Galveston County portion of the sea wall, which had been raised after the 1915 storm, met every requirement.

CORPUS CHRISTI DISASTER. The same hurricane which struck Galveston did vast damage at Corpus Christi, Texas, and occasioned a loss of life and property. This severe tropical storm and tidal wave, which was the most severe in the history of the Texas Gulf coast, on the morning of Sept. 14, 1919, passed over the barrier islands and swept away portions of the city of Corpus Christi and the towns of Port Aransas, Aransas Pass and Rockport, causing a property loss of many millions of dollars and a loss of life estimated at 350. The greatest damage and loss of life was at Corpus Christi, a city of 20,000 population, where some 300 persons perished needlessly, it is said, as they could have taken refuge in the bluff or upper residential portion of the city 35 feet above the sea level. The storm was marked by an extreme tidal height reaching a level of 12.4 feet above mean low tide as against 5.9 feet in 1916. The storm was a typical West Indian hurricane, and was undoubtedly more severe than the Galveston storm in 1900, although much of its force was broken at the outer islands. The town of Aransas Pass, on Mustang Island, was entirely destroyed, although there was small loss of life, as adequate warnings had been received. The damage done was the result of the combined force of waves, floating timber and wind, which reached a maximum velocity of 80 miles an hour, all acting jointly. It was demonstrated that the great tidal height possible in one of the West Indian hurricanes renders uncertain the protection afforded by the outer or barrier islands to the inner shore line. The effect of the flood was so great as to almost prostrate the commercial activity of the region temporarily, and considerable discussion resulted as to the best method of providing protection in the future. It was realized that the scheme provisionally adopted for a sea wall was quite inadequate, and that some further system of development must be evolved to provide against a similar contingency.

HYMANS, PAUL. Belgian representative at the Paris Peace Conference. He held the office of Belgian Minister for Foreign Affairs. He had been a leader of the Liberal party in Belgium before the war and had been a prominent lawyer known for his abilities and his wide political experience.

ICE CREAM. See DAIRYING.

ICELAND. A Danish crown colony with an

area of 40,456 square miles, of which 16,245 are inhabited, with a population estimated in 1919 at 92,700. The Danish king is also king of Iceland, although the government has recognized Iceland as a sovereign state. The foreign affairs of the country are under the control of Denmark, and Iceland has decided on a foreign policy of perpetual neutrality. The national church is Evangelical Lutheran, but there is complete religious liberty. There is a university in Reykjavik, and several other schools. The budget estimates for the year of 1919 gave a total revenue of 2,422,325 krónur, and a total expenditure of 2,905,782 krónur. The state possesses a comparatively large reserve fund, invested in different loans, amounting at the beginning of 1918 to 1,730,000 krónur. In 1917 the total hay crop was about 780,000 cwt., the crop of potatoes 15,000 cwt., and of turnips 8000 cwt. The total value of fisheries in 1915 was estimated at 14,800,000 krónur. The President of the Council and Minister of Justice and of Ecclesiastical Affairs in 1919 was Jón Magnusson. The display of the new Icelandic flag at Reykjavik on Dec. 1, 1918, marked the advent of Iceland into the family of nations. Denmark and Iceland now form a Union wherein the same king is at the head of each country. Equal rights obtain for all natives in both Iceland and Denmark, though military service can be required only in the country of which the man is a citizen. All domestic affairs are administered independently by each country. A consultative committee, composed of three Danes and three Icelanders, passes on all measures affecting both countries before such bills are presented to parliament. Foreign affairs are entrusted to Denmark, and at each Danish legation there is to be an Icelandic attaché. Where there are neither diplomatic nor consular officials Iceland may maintain her own representatives. Any controversy regarding the terms of the Union is to be settled by arbitration. After 1940 the Parliament of either nation may at any time demand a revision of the act of Union.

In October, 1918, the volcano of Katla, buried under the neve of Myrdala Jokull, burst forth with marked violence and its outflow continued for several weeks, damaging pasturage greatly. It is the thirteenth outburst in historic times, the last being in 1860 when its violence continued for 19 days. For the first time the Vatna Jokull has been crossed from west to east, by Wardell and Ygberg in 1919, when they discovered a new crater about three to five miles in extent.

IDAHO. POPULATION. The population of the State in 1910 was 325,594, and on July 1, 1919 it was estimated to be 478,356, a gain during the year of 16,000.

AGRICULTURE. The following is compiled from an annual report of the Federal Department of Agriculture.

Crop	Year	Acreage	Prod. Bu.	Value
Corn	1919	24,000	840,000	\$1,386,000
	1918	23,000	920,000	1,684,000
Oats	1919	220,000	7,700,000	7,546,000
	1918	237,000	9,480,000	8,911,000
Barley	1919	120,000	3,360,000	4,704,000
	1918	170,000	4,760,000	6,188,000
Wheat	1919	1,030,000	18,705,000	38,345,000
	1918	950,000	20,275,000	38,928,000
Hay	1919	650,000	1,625,000	35,750,000
	1918	667,000	2,001,000	35,218,000

Crop	Year	Acreage	Prod. Bu.	Value
Potatoes	1919	86,000	5,400,000	8,154,000
	1918	34,000	6,290,000	5,095,000

a Tons.

TRANSPORTATION. The total railway mileage of the State for 1919 was 3629 of main line single track; of this four miles were constructed during the year. The largest systems are the Oregon Short Line, the Northern Pacific, and the Chicago, Milwaukee & St. Paul.

FINANCE. During the biennium ending September 30, 1918, the total receipts were \$8,641,270 and the disbursements amounted to \$9,121,013. The balance at the beginning of this time was \$1,184,930 and at the end it was \$705,187. The bonded debt of the State is \$2,818,750.

CHARITIES AND CORRECTIONS. The following is a list of institutions under State control: Penitentiary, at Boise; Soldiers' Home, at Boise; Insane Asylum, at Blackfoot; Sanitarium, at Orofino; Sanitarium, at Nampa; University of Idaho, at Moscow; State Normal School, at Lewiston; State Normal School, at Albion; Idaho Technical Institute, at Pocatello.

OFFICERS. Governor, D. W. Davis, R.; Lieutenant-Governor, C. C. Moore, R.; Secretary of State, Robert O. Jones, R.; Auditor, E. G. Gallet, R.; Treasurer, John W. Eagleson, R.; Attorney-General, Roy L. Black, R.; Superintendent of Public Instruction, Ethel E. Redfield, R-D.; Inspector of Mines, R. N. Bell, R.

JUDICIARY. Supreme Court: Chief Justice, William M. Morgan; Associate Justices, John C. Rice, Alfred Budge.

IDAHO, UNIVERSITY OF. A State institution of learning, located at Moscow, Idaho. The enrollment for the summer session of 1919 was 115 and the autumn total was 782; the faculty numbers 80. The endowment was originally 286,000 acres of land, of which one-fourth has been sold; the total value estimated at \$6,000,000. The income for the year was \$684,908. The library contains 45,000 volumes. The university was founded in 1889. President, Ernest Hiram Lindley, Ph.D.

IJUN, Mr. Japanese representative at the Paris Peace Conference. He was born in 1864, entered the diplomatic service in 1890, served at London, Vienna, and Pekin, became minister to China in 1908, and ambassador to Italy in 1916.

ILLINOIS. POPULATION. The population of the State in 1910 was 5,638,591, and on July 1, 1919 it was estimated to be 6,400,473, a gain during the year of 82,000.

AGRICULTURE. The following table is compiled from a report of the Federal Department of Agriculture, for December 1919.

Crop	Year	Acreage	Prod. Bu.	Value
Corn	1919	8,600,000	301,000,000	\$391,300,000
	1918	9,700,000	344,350,000	413,220,000
Oats	1919	4,102,000	123,060,000	86,142,000
	1918	4,508,000	198,352,000	132,896,000
Wheat	1919	4,150,000	65,675,000	137,918,000
	1918	2,900,000	63,970,000	133,058,000
Hay	1919	3,250,000	4,810,000	102,934,000
	1918	3,372,000	4,552,000	95,592,000
Potatoes	1919	155,000	8,060,000	15,798,000
	1918	160,000	11,520,000	17,050,000

a Tons.

FINANCE. The balance in the treasury on Sept. 30, 1918 was \$20,995,540 and a year la-

ter it was \$26,861,321. The receipts for this period amounted to \$32,240,681 and the disbursements were \$26,374,900. The principal of the State outstanding bonded debt as of Oct. 1, 1919, was \$17,500. Bonds totalling this amount were called in by the Governor's proclamation. These bonds have ceased to draw interest but have not yet been surrendered.

TRANSPORTATION. The total railway mileage of the State for 1919 was about 13,413 miles of single main line track; of this, over six miles were constructed in the year. The longer roads are the Illinois Central, the Wabash, and the Cleveland, Cincinnati, Chicago & St. Louis.

CHARITIES AND CORRECTIONS. The following is a list of the State institutions, under the control of the Department of Public Welfare. Hospitals, at Elgin, Kankakee, Jacksonville, Anna, Watertown, Peoria, Chicago, Chester, and Alton; School and Colony, at Lincoln; Colony, at Dixon; Schools for the Deaf and the Blind, at Jacksonville; Soldiers' Home, at Quincy; Widow's Home, at Wilmington; Orphans' Home, at Normal; Eye and Ear Infirmary, at Chicago; Training School for Girls, at Geneva; School for Boys, at St. Charles; Industrial School for the Blind, at Chicago; Reformatory, at Pontiac; Prison, at Joliet, and the Southern Illinois Prison. The total expenditure for these approximates \$7,500,000. The total population of these institutions on Apr. 30, 1919 was 26,231, an increase of 581 from Dec. 31, 1918. See OLD AGE PENSIONS.

OFFICERS. Governor, Frank O. Lowden, R.; Lieutenant-Governor, John G. Oglesby, R.; Secretary of State, Louis L. Emmerson, R.; Auditor, Andrew Russell, R.; Treasurer, Fred E. Sterling, R.; Superintendent of Public Instruction, Francis G. Blair, R.; Attorney-General, Edward J. Brundage, R.; Adjutant-General, Frank S. Dickson.

SUPREME COURT. Justices: Warren W. Duncan, William M. Farmer, Frank K. Dunn, Floyd E. Thompson, Clyde E. Stone, James H. Cartwright, Orrin N. Carter, Clerk, C. W. Vail. (See CHILD LABOR.)

See ZINC: AGRICULTURAL EXPERIMENT STATIONS.

ILLINOIS, UNIVERSITY OF. A co-educational non-sectarian institution of higher learning, situated at Urbana, Ill., but whose faculties of medicine, dentistry and pharmacy are located in Chicago, Ill. In the fall of 1919 the number of students attending in all schools was reported as 8052; number on the teaching staff,

672. President, Edmund J. James, Ph.D., LL.D., absent on leave; Acting President David Kinley, Ph.D., LL.D.

IMMIGRATION AND EMIGRATION. During the fiscal year ending June 30, 1919, the total number of immigrants entering the United States was 141,132, as compared with 110,618 for the fiscal year 1918, 295,403 for 1917, 298,826 for 1916, and 326,700 for 1915. While the number of immigrant aliens admitted in 1919 was larger than for 1918 by 30,514, it was smaller than that of any year previous to 1918 since 1862. Besides the aforementioned 141,132 immigrant aliens, there were admitted during the year 95,889 non-immigrant aliens, making a total of 237,021 aliens admitted. During the same fiscal year a total of 123,522 emigrant aliens departed from our shores and 92,709 non-emigrant aliens left—a total of 216,231 aliens leaving the United States. This signified a net gain in population of 20,790 persons, compared with a similar increase of 18,585 in 1918, 216,494 in 1917, 125,941 in 1916, and 50,070 in 1915. The increase in population from foreign sources in 1914, the last year before the war, amounted to 769,276.

A total of 8626 immigrants were debarred during the fiscal year 1919, or 3.6 per cent of the total number of applicants, as against 7297 rejections in the previous year, or 3.3 per cent. In 1917 there were 16,028 rejected or 4.2 per cent; in 1916, 18,867, or 4.9 per cent; in 1915, 24,111, or 5.3 per cent; and in 1914, 33,041, or 2.3 per cent. The largest single cause in 1919 was listed as "likely to become a public charge," which accounted for 3994 or 46.3 per cent, and 1455 were barred by the literacy test as against 1508 for the same cause in the previous year. There were 40 alien enemies excluded. Besides this, 464 stowaways were detected as compared with 161 the previous year. During the fiscal year 1919, 3102 persons were deported after landing, in comparison with 1619 in 1918. Here again the likelihood of the person becoming a public charge was responsible for the largest number, 1150.

It was the opinion of the immigration service at the time the statistics for the fiscal year 1919 were published that there was a strong possibility of an increase in immigration now that the war was over. It was pointed out that the low ebb of 1918 had been passed and that the figures for 1919 showed a substantial increase, although peace had not yet been formally concluded.

IMMIGRATION AND EMIGRATION FOR YEAR ENDING JUNE 30, 1919

Races	Admitted			Departed			Increase (+) or decrease (-)
	Immi- grant aliens	Non- immigrant aliens	Total	Emi- grant aliens	Non- emigrant aliens	Total	
African (black)	5,823	6,439	12,262	976	3,028	4,004	+ 8,258
Armenian	282	95	377	11	15	26	+ 351
Bohemian and Moravian	105	148	253	412	9	421	- 168
Bulgarian, Serbian, Montenegrin ..	205	234	439	3,241	132	3,373	- 2,934
Chinese	1,697	5,729	7,426	2,062	5,868	7,930	- 504
Croatian and Slovenian	23	5	28	154	10	164	- 136
Cuban	1,169	3,404	4,573	898	3,240	4,138	+ 435
Dalmatian, Bosnian, Herzegovinian	4	2	6	3	2	4	+ 2
Dutch and Flemish	2,735	2,832	5,567	1,356	4,348	5,704	- 137
East Indian	68	471	539	106	30	136	+ 403
English	26,889	18,675	45,564	9,406	18,817	28,223	+17,341
Finnish	968	281	1,249	497	108	605	+ 644
French	12,598	8,645	21,243	5,472	6,493	11,965	+ 9,278
German	1,837	340	2,177	343	176	519	+ 1,658
Greek	813	689	1,502	15,562	875	16,437	-14,935
Hebrew	3,055	605	3,660	373	165	538	+ 3,122

Races	Admitted			Departed			Increase (+) or decrease (-)
	Immigrant aliens	Non-immigrant aliens	Total	Emigrant aliens	Non-emigrant aliens	Total	
Irish	7,910	2,236	10,146	1,934	1,225	3,159	+ 6,987
Italian (north)	1,236	1,682	2,918	1,195	675	1,870	+ 1,048
Italian (south)	2,137	3,844	5,981	36,980	3,641	40,621	-34,640
Japanese	10,056	4,848	14,904	2,127	9,106	11,233	+ 3,671
Korean	77	25	102	23	21	44	+ 58
Lithuanian	160	36	196	6	5	11	+ 185
Magyar	52	5	57	10	....	10	+ 47
Mexican	28,844	15,932	44,776	17,793	8,764	26,557	+18,219
Pacific Islander	6	3	9	2	12	14	- 5
Polish	732	305	1,037	153	9,956	10,109	+ 9,072
Portuguese	1,574	505	2,079	3,525	633	4,158	- 2,079
Rumanian	89	43	132	60	46	106	+ 26
Russian	1,532	507	2,039	1,717	808	2,525	- 486
Ruthenian (Russniak)	103	2	105	2	4	6	+ 99
Scandinavian	8,261	4,902	13,163	4,865	4,375	9,240	+ 3,923
Scotch	10,364	3,898	14,262	1,687	2,181	3,868	+10,394
Slovak	85	31	116	1,150	25	1,175	- 1,059
Spanish	4,224	3,589	7,813	7,489	4,078	11,567	+ 3,716
Spanish-American	3,092	2,322	5,414	799	2,299	3,098	- 2,354
Syrian	231	239	470	132	117	249	+ 221
Turkish	18	27	45	275	21	296	- 251
Welsh	608	857	965	156	121	277	+ 688
West Indian (except Cuban)	1,223	1,724	2,947	336	1,106	1,442	+ 1,505
Other peoples	247	233	480	235	174	409	+ 71
Total	141,132	95,889	237,021	123,523	92,709	216,231	+20,790

IMMIGRATION FOR FOUR YEARS *

	Years ending June 30—			
	1916	1917	1918	1919
African (black)	4,576	7,971	5,706	5,823
Armenian	964	1,221	221	282
Bohemian and Moravian	642	327	74	105
Bulgarian, Serbian, Montenegrin	3,146	1,134	150	205
Chinese	2,239	1,843	1,576	1,697
Croatian and Slovenian	791	305	33	23
Cuban	3,442	3,428	1,179	1,169
Dalmatian, Bosnian, Herzegovinian	114	94	15	4
Dutch and Flemish	6,443	5,393	2,200	2,735
East Indian	80	69	61	68
English	36,168	32,246	12,980	26,889
Finnish	5,649	5,900	1,867	968
French	19,518	24,405	6,840	12,598
German	11,555	9,682	1,992	1,837
Greek	26,792	25,919	2,602	813
Hebrew	15,108	17,342	3,672	3,055
Irish	20,636	17,462	4,657	7,910
Italian (north)	4,905	3,796	1,074	1,236
Italian (south)	33,909	35,154	5,234	2,137
Japanese	8,711	8,925	10,168	10,056
Korean	154	194	149	77
Lithuanian	599	479	135	160
Magyar	981	434	32	52
Mexican	17,198	16,438	17,602	28,844
Pacific Islander	5	10	17	6
Polish	4,502	3,109	668	732
Portuguese	12,208	10,194	2,319	1,574
Rumanian	953	522	155	89
Russian	4,858	3,711	1,513	1,532
Ruthenian (Russniak)	1,365	1,211	49	103
Scandinavian	19,172	19,596	8,741	8,261
Scotch	13,515	13,350	5,204	10,364
Slovak	577	244	35	85
Spanish	9,259	15,019	7,909	4,224
Spanish-American	1,881	2,587	2,231	3,092
Syrian	676	976	210	231
Turkish	216	454	24	18
Welsh	983	793	278	608
West Indian (except Cuban)	948	1,369	732	1,223
Other peoples	3,388	2,097	314	247
Total	298,823	295,403	110,618	141,132

* Non-immigrant arrivals are not recorded in this table.

IMPORTS. See FINANCIAL REVIEW; also articles on countries.

INCOME TAX. See TAXATION.

INDEPENDENT LABOR PARTY. See GREAT BRITAIN.

INDIA, BRITISH. The territory administered by the British sovereign as Emperor of India, through the viceroy or governor-general, in council. In addition to British India it includes the native states that are under the suzerainty of the British government. Capital of British India, Delhi.

AREA AND POPULATION. Area, 1,802,657 square miles; population, 315,156,396. No later figures are available than those given in the 1917 YEAR BOOK, which present the details.

EDUCATION. Persons with a knowledge of English in 1919 numbered slightly under 18,000,000. Instruction in India generally conforms to the standards of public instruction, which are called "Public," and those that do not fulfill these conditions, "Private." The following table giving the number of institutions and scholars in British India, including Ajmer-Merwara, British Baluchistan, and the station of Bangalore (1917) is from the *Statesman's Year Book* of 1919.

	Institutions for		Scholars	
	Males	Females	Males	Females
Colleges	179	16	57,617	1,022
General education:				
Secondary	7,004	689	1,084,356	101,979
Primary	124,081	18,122	4,782,605	1,036,125
Special schools	4,323	538	126,262	17,342
Private institutions	35,848	1,955	570,687	73,951
Total	171,345	21,320	6,621,527	1,230,419
Grand total	192,755		7,851,946	

In the year 1915-16, £7,407,968, and in 1916-17, £7,525,538, were the expenditures for public institutions, over 50 per cent of which came from fees, provincial resources, local rates, municipal funds, and endowments.

PRODUCTION, ETC. Agriculture is the chief industry of India, and it was estimated that in 1919 over 226,000,000 out of a total population of 313,000,000 were thus employed. The following are the provisional figures for the 1917-18 crop production, yield in tons: Rice, 35,952,000; wheat, 10,162,000; cotton, 4,036,000 (bales); pure linseed, 390,000; mixed, 117,000; rape and mustard, pure, 711,200; mixed, 405,000; sesamum, pure, 319,000; mixed, 67,000; ground

nut, 1,042,000; jute, 6,945,600 (bales); indigo, 87,800 (in cwts. of dye); sugar cane, 3,266,000; tea, 370,180,800 (pounds).

The sugar cane crop in 1919 was reported, unofficially in trade journals, to be slightly in excess of the 1918 production. The acreage for these crops and their yield have generally increased over 1918, by unofficial estimate, to the extent of 12.2 per cent. For the figures of the area, crop, and yield of provinces and states, see preceding YEAR BOOK, no later data being available.

One of the chief industries connected with agriculture is the tea industry. The number of persons employed in this industry was about 753,000 in 1919. The area under tea plucked in 1917-18 was about 664,000 acres, distributed as follows: Assam, 399,700; Bengal, 167,800; Madras, 33,000; Punjab, 7500; Agra, 8000; Bihar and Orissa, 2200; Upper Burma, 2800; and the Travancore State, 43,300. The production in 1917-18 was slightly over 370,000,000 pounds, as against about 369,000,000 pounds in 1916-17. The exports of Indian tea from British India (including the Travancore State) in 1917-18 were: United Kingdom, 266,964,000 pounds; Russia, 8,122,000 pounds; Canada, 21,153,000 pounds; China, 3,245,000 pounds; Aus-

tralia, 1,042,000; jute, 6,945,600 (bales); indigo, 87,800 (in cwts. of dye); sugar cane, 3,266,000; tea, 370,180,800 (pounds).

portant industry to agriculture in India, although no statistics for this industry are available for the current year.

MINERALS. The mineral production in 1917 totalled £13,351,364 in value, 17,326,384 tons of coal were produced in 1917. The average number of persons working in or about mines regulated by the Indian Mines Act was 211,881 in 1917, with 133,042 underground. The other principal minerals were manganese ore, gold, salt, saltpetre, lead, tungsten ore, and mica.

COMMERCE. The following information in regard to commerce was supplied by the United States Bureau of Foreign and Domestic Commerce, October 24th: The summary of the results of India's trade for the 12 months ended March, 1919, as compared with the corresponding period of 1913-14 (pre-war 12 months) and of 1917-18, is shown in the table below. In the 12 months ended March, 1919, exports, including reexports, were higher by \$36,660,966, or 5 per cent, than in 1917-18, and by \$16,124,336, or 2 per cent, than in 1913-14. In the same period imports were higher by \$60,377,043, or 12 per cent, than in 1917-18, but less by \$46,134,420, or 8 per cent, than in 1913-14.

The total value of the import and export trade in merchandise for the years mentioned follows:

Item	Year ended March, 1914 (pre-war year)	Year ended March, 1918	Year ended March, 1919
Exports, including reexports	\$807,449,680	\$786,913,050	\$828,574,016
Imports	594,524,083	488,012,620	548,889,663
Actual net excess of exports over imports	\$212,925,597	\$298,900,430	\$275,184,353

tralia, 10,776,000 pounds; Ceylon, 4,484,000 pounds; Asiatic Turkey, 1,977,000 pounds; United States, 20,665,000 pounds; elsewhere, including exports across the land frontier, 23,236,000 pounds; making a total of 360,622,000 pounds, as against 292,594,000 pounds in 1916-17.

There were state irrigation works in 1919 of about 27,000,000 acres in area. The net revenue from these works in 1917 was £4,716,000, and the estimated value of crops for that year on this area was over £61,250,000.

Of the forested areas in 1916-17, there were 100,308 square miles of reserve forest, 9140 square miles of protected forest, and 137,131 square miles of unclassified forest land, making a total of 246,579 square miles, which produced in that year about £1,221,000 sterling.

The Indian Department of Agriculture made public, toward the end of 1919, its final forecast of the jute crop for that year, placing the area under this crop at 2,821,575 acres, and the yield at 8,486,234 bales, of 400 pounds each. This was an increase of 321,193 acres, and 1,467,146 bales over the returns of the previous year.

The first official forecast of India's 1919-20 indigo crop places the area sown at 208,100 acres, or 26 per cent below the estimate for the corresponding period of 1918-19. The total yield of dye is estimated at 27,300 cwt., as against 32,100 cwt., the first estimate for 1918-19.

On account of the drought in 1919, agricultural conditions in general were not favorable in most parts of the provinces. However, toward the end of the year, the weather improved, but the increase in acreage was mainly due to the better prices obtained last year.

The weaving of cotton cloths is the next im-

portant industry to agriculture in India, although no statistics for this industry are available for the current year.

In the 12 months ended March, 1919, as compared with the corresponding period of the preceding year, the quantity of imported cotton piece goods decreased by 433,000,000 yards, or 28 per cent, to 1,122,000,000 yards, and the value, \$157,493,566, was nearly the same as in the preceding year. The value of cotton twist and yarn imported increased by \$14,830,171 to \$28,765,232, the receipts from Japan being over 27,000,000 pounds, valued at \$17,292,297. Articles imported by post increased by \$6,082,476, wheat by \$3,130,457, tea by \$911,009, cigarettes by \$1,291,245, mineral oil (other than kerosene) by \$2,512,736, salt by \$422,412, silk piece goods by \$2,259,029, raw cotton by \$2,571,134, aniline and alizarine dyes by \$620,316; sugar, 16 D. S. and above, by \$1,072,901; paper by \$1,131,299, betel nuts by \$1,590,372, spirits by \$1,417,124, steel bars and channel by \$4,909,650; ale, beer, and porter by \$545,048, and cotton-mill machinery by \$1,582,585. Imports of motor cars and motor cycles decreased by \$1,079,390, kerosene oil by \$2,601,956, cement by \$1,187,102, matches by \$2,273,953, jute-mill machinery by \$545,048, cotton hosiery by \$494,761, and wood (timber) by \$1,564,742.

Under exports the quantity of rice, not in the husk, increased by 77,871 tons to 2,017,321 tons and the value by \$7,653,707, to \$74,487,622, while wheat showed a decrease of 978,272 tons to 413,103 tons in quantity and \$39,742,110 to \$21,909,307 in value. The quantity of raw cotton exported decreased by 181,455 tons and the value by \$37,873,699. The quantity of raw jute exported showed an increase of 120,046 tons or nearly 44 per cent. The value of jute gunny bags exported increased by \$9,280,415 and of gunny cloth by \$21,491,113, of raw skins by

\$5,770,696; of skins, tanned, by \$3,878,601, of tea by \$324,443; of hides, tanned, by \$7,180,034, and of seeds by \$97,333,000, while the value of raw hides decreased by \$1,529,703, pulse by \$9,693,419, and barley by \$4,128,739.

TRADE WITH THE EMPIRE. Considerable loss was said to have been caused to British merchants trading with India as the result of the reduction of freight to India, which caused hardship to those whose contracts were based on war rates. This affected considerably the iron and steel and cotton trades.

SHIPPING. Bombay and Calcutta are the chief ports, having had about 73 per cent of the foreign trade in 1919. This year also marked considerable progress in the project of an Indian mercantile marine as planned in 1918. This was designed to relieve the shortage of shipping, and it was believed that it will have a very stimulating effect on the production and foreign trade of India. In 1919 the plan to give the government a control through bodies similar to those controlling railways and irrigation, of harbor improvements, was practically, though not officially announced, in operation.

RAILWAYS. The railways open on March 31, 1918, were as follows:

	Miles
State lines worked by the state.....	7,194
State lines worked by companies.....	19,068
Branch line companies' railways under guarantee and rebate terms.....	2,027
Companies' lines subsidized by central or local governments.....	2,846
Unassisted companies' lines.....	76
District board lines.....	214
Native state lines worked by native states.....	2,479
Native state lines worked by the main line.....	1,788
Companies' lines guaranteed by native states.....	760
Lines in foreign territory, worked by British Indian railway companies.....	74
Total miles.....	36,333

The gauges of the Indian railways vary. There is the standard gauge of 5 feet 6 inches, the meter gauge of 3 feet, 3 $\frac{3}{4}$ inches, and the special gauges of 2 feet 6 inches, and 2 feet. The total expenditure on railways for the end of 1917-18, including lines under construction and survey, was 5,48,07,95,000 Rs. The net profit to the state in 1917-18 was £9,992,134 sterling, against £7,482,314 in 1916-17. There were in 1918 6796 Europeans, 10,233 Anglo-Indians, and 636,936 Indians employed on the railway staff, making a total of 653,965. India and Ceylon had been connected by rail and steamer ferry combined. It was projected to replace the ferry by a railway constructed on the causeway over the reef known as Adam's bridge.

The great war and the necessity of facilitating military operations in every way possible had a serious effect on the railways of India. Material of all kinds was supplied for the campaigns in Mesopotamia, East Africa, and elsewhere from a supply that even normally was all too scanty. An official statement of the materials belonging to Indian railways sent out of the country for war purposes related that in such supplies and equipment were included 774 miles of new and second hand rails, 217 locomotives and 5423 vehicles. Of the rolling stock 196 locomotives and 4908 vehicles were meter gauge. The other materials sent were varied in character and very large in quantity. Before the cessation of hostilities the replacement of 157 meter gauge

locomotives and 2500 vehicles had been arranged.

FINANCE. The revenue in 1918 in India, in pounds sterling, was: Imperial, 74,492, and provincial, 33,361, in England, 2071, making a total of 109,924. The expenditure, chargeable to revenue, for 1918, was, Imperial, 44,405, provincial, 33,361, in England, 26,447, making a total of 104,213. The total revenue for 1918-19, according to official figures, was £109,190,300, and the expenditure, £106,608,800. The debt of British India, bearing and not bearing interest, was £445,125,567 on March 31, 1918. The total financial contribution of India to the war in final official estimate, was £100,000,000. According to official information supplied by the Indian government at the beginning of 1919, the position of the national debt down to Sept. 30, 1918, that is to say, after four years of war, was exceedingly favorable. Apart from the floating debt of about 40 crores of rupees in the shape of treasury bills and temporary loans from the Presidency banks, the national debt was 558 crores or about £372,000,000, which would come to less than 23 rupees per head of the population. The unproductive debt before the war had been 19 crores per head on which the entire interest was 1 crore. The productive debt as regards railways and irrigation works was 411 rupees with interest at the rate of about 13 crores, but the state earned the equivalent of £6,000,000. On March 31, 1918, India's unproductive debt was less than the war loan of £100,000,000.

HISTORY

SUMMARY. During the early part of the year there was much disturbance among the people. Famine and influenza followed by an epidemic of the plague; constant increase in the cost of living; the Rowlatt acts; the unrest among the Mohammedans on account of the war; and the resentment of the educated classes against the censorship—all these factors contributed to the discontent. In April disorders extended over a large part of the country, and everywhere there was a tendency among the Hindus, Mohammedans, Sikhs, and Marwaris to draw together against the British power, but the government acted promptly and for the time being at least suppressed the movement. The so-called Rowlatt acts included the Indian Criminal Law Act and the Emergency Criminal Law Act which gave the governor-general power to invest the police with special authorities of search and punishment in regions affected by sedition. They were passed in March, 1919, and they gave great offense to a powerful element in the country. They were not supported by the legislative council or by the leaders of the Indians outside and several members of the government resigned in protest. A Passive Resistance League was formed at Bombay to oppose the laws and it soon passed from the passive to the active state. Nevertheless the government defended its policy. In the British Parliament Mr. Montagu spoke on its behalf on the occasion of the budget. At this time also a bill was introduced for the constitutional reform for India based upon the celebrated Montagu-Chelmsford Report of 1918 (summarized in preceding YEAR BOOK). Two reports were presented along with it by the so-called Southborough Committees. The first recommended the giving of the vote to more

than 5,000,000 electors many of whom did not speak English; property qualifications based upon land revenue districts; and communal representation not only for Mohammedans but for Sikhs, Indian Christians, Europeans, and Eurasians. The second presented a plan for the division of powers between the supreme and provincial governments. The Montagu bill incorporated the recommendations of both reports. It was discussed widely throughout the year. The Indian extremists wished to give the Legislature complete control of the budget and to reduce the governor-general's authority in respect to the Indian ministry; while the moderates in general accepted the main principles of the existing system. In the latter part of the year there was serious trouble with the tribesmen on the Afghan border who were threatening to combine with the Bolsheviks. The Mahsuds and Waziris were offering a stout resistance to the British forces at the close of the year. In December the government announced its programme for India, declaring it a great step toward self-government. The following paragraphs deal with the year's events in detail.

RAVAGES OF THE INFLUENZA. At the beginning of the year figures in regard to the influenza epidemic were published from which it appeared that 6,000,000 deaths had been caused by it, amounting to more than half of the deaths by plague during 22 years; and the cases of influenza were placed at from 50 to 80 per cent of the total population.

ATTITUDE OF THE PRINCES. A conference of the ruling princes was held at Delhi toward the end of January. At this the view that the reform measures would improve and aid future relations between the Crown and the states if the rulers who possessed full powers of internal administration were definitely marked off from those who did not, was discussed by the princes, who showed considerable diversity of opinion on the subject. The conference endorsed the principle of the council of princes and approved the plan of a standing committee of this council.

INDIAN NATIONAL CONGRESS. The National Congress was held at Allahabad at the beginning of the year. A resolution was proposed condemning the Rowlatt report on conspiracies. Mrs. Besant moved a resolution for self-determination, saying that if the Indians failed to obtain their request from Parliament, they would appeal to the Peace Conference. Messrs. Tilak, Gandhi, and Hassan Imam were nominated as representatives to the Peace Conference. It was evident from these measures that the moderate element in Congress would not compromise with the extremists.

THE ROWLATT ACTS. On February 10th the government at the Imperial Council introduced the second Rowlatt bill proposing permanent changes in the Indian penal code and the code of criminal procedure. At the same time the government announced that the previous measure, namely, the Rowlatt Emergency Powers bill, would remain in operation only three years after the end of the war. The object of these measures was the suppression of seditious movements. The Indian speakers were opposed to the measure in regard to criminal procedure, especially to one of its provisions to the effect that persons found in possession of seditious documents were liable to imprisonment.

INTERNAL DISORDERS. Serious strikes were reported at the end of January in Bombay, and it was said that some 15 mills involving about 15,000 workers were at that time involved. The coercion of workers who did not wish to strike was charged against the strikers and it was said that mills had been invaded for this purpose, and that the authorities were unable to give protection. The strike was the more dangerous in that a cholera epidemic was raging at the time. In March riots occurred at Delhi. At this centre the programme of passive resistance had been preached by its adherents. The mobs on the street however passed beyond the passive stage. They were said to have driven people out of the street cars, held up traffic in the streets and stopped British officials; also to have made an attack on the railway station; and according to the reports at the time six persons were killed and 17 wounded by the troops who fired upon the mob. The agitation was attributed to the false reports circulated among the ignorant population in regard to the consequences of the Rowlatt Act. The passive resistance movement was announced in February after the resolution was introduced to put into effect the recommendations of Justice Rowlatt. It was originated by the so-called "home rulers" of Bombay who were supported by the native Indian statesman Mr. Gandhi. In spite of the danger of anarchy he advocated opposition to the proposed legislation, holding that it was unjust to apply it to the entire country. In addition to the riots resulting from the passive resistance movement at Delhi serious disturbances were reported in other parts of India on April 5th, mainly in the Punjab and in the Bombay Presidency. At Amritsar government buildings were burned, telegraph wires cut and three bank managers burned to death. Troops were called out and fired upon the mob at various points and a considerable loss of life resulted on both sides. Thereupon the Indian government assumed new powers for the purpose of enforcing drastic measures and the governor-general announced that he would use military force to put down riots.

Better conditions were reported at the chief centres of disturbance on April 17th but even then the country between Amritsar and Lahore was said to be in a state of open revolt and serious trouble was reported near Ahmedabad. The governor-general at this time issued a proclamation setting forth the government's attitude toward the agitation against the Rowlatt act. He said that this had been misunderstood and he assured the people that there was no danger from its application to any one who was not a revolutionary or anarchist. Martial law was extended throughout the region to the north of Lahore and the disturbances were for the most part confined to the Punjab. On April 19th the rioters caused damage on one of the railway lines and killed a fireman and a passenger. Deliberate attacks were also made upon telegraph and telephone lines, and there was evidence of a high degree of organization among the rioters and of coöperation between the Moslems and the Hindus. On April 15th, the mob attacked and wrecked the railway station at Gujerat and Government troops fired upon the rioters at that point. There were also attacks upon railway property near Amballa about the same time.

THE CAUSES OF THE REVOLTS. A great deal was said in the press about the relation of Bolshevism to the Indian riots. It was implied that a Bolshevik organization was working through the Indian revolutionary party. It was alleged during 1918 that the Bolshevik representatives at Stockholm had sent money and explosives to Bombay and had been informed by their agents that a Bolshevik movement would break out in India in March or April, 1919. Other evidence to the same effect was printed in the newspapers. The attacks were directed specifically against Englishmen and against certain unpopular native officials. It appeared that the rioters were well supplied with food although the mass of the population was in want; and it appeared also that they were working upon a concerted plan under the guidance of intelligent persons. The following account of the riots at Ahmedabad appeared in the London *Times* under date of April 18th from Bombay. Labor unrest had for a long time been evident in the city which was the centre of textile industry under Indian management and a strike for higher wages had occurred. When the news of the arrest of the native Indian leader Mr. Gandhi reached the city, shops were closed and the mill hands paraded the streets. They soon began to attack the English inhabitants and in some instances handled them roughly. The passive resistance element tried to maintain order but the mob of mill hands got out of hand and began burning buildings, attacking electric plants, telegraph offices, etc. Meanwhile representatives of the moderate element among the natives made repeated attempts to restore order. In regard to the Rowlatt Act the government declared that it was absolutely necessary in order to protect the lives and property of peaceful subjects.

SUPPRESSION OF THE REVOLTS. In the revolt at Amritsar, noted above, it appeared that 500 natives had been killed by the British troops. The latter were under the command of General Dyer who believed that extreme severity was necessary to prevent an uprising and who set up martial law in the region. It was brought out afterwards that the troops had fired repeated volleys upon a mob of 5000 people who were headed by native agitators. Sharp criticism on the score of cruelty was directed against the commanding officer and the matter was made the subject of an official investigation. The commission of inquiry justified the general in ordering the troops to keep on firing. Nevertheless criticism continued during the year and the natives described him as a butcher of the Indians.

BOLSHEVISTS AND REBELS. In November there was trouble with the tribesmen who attacked the British posts to the southeast of Kabul. There was more alarm, however, from danger of the combination of the Afghan rebels with the Bolsheviks. An Afghan mission was sent to Moscow and a Russian Bolshevik mission was sent to Kabul, their aims being to open commercial intercourse and to come to a friendly understanding. In December the British forces met with a slight reverse near the Afghan border in the hill country adjacent to the Punjab. An expedition under Gen. S. H. Climo consisting of the Waziristan field force was operating in the region against the savage Afghan tribesmen, the Mahsuds, and Waziris. A check to his advance was reported and a considerable loss was said to have been sustained, namely about 58 killed

and 222 wounded. It was said that the British recovered the ground which they had lost. The general in command had distinguished himself in many Indian campaigns since 1897 and had served in Mesopotamia in 1915-16 where he led mixed troops of British and Indians and was four times wounded.

ADMINISTRATIVE REFORM. The subject of reform was discussed by Mr. Montagu at the beginning of March. He emphasized as the main object of the reform the decentralization of power. There was great and justifiable irritation on the part of the provincial governments against the present system, he said. Decrees issued many hundred miles away from the point at which they were to be applied had no relation to local conditions. The reforms, however, sought to guard against an increase of the bureaucratic character of the local governments. Responsible government must be substituted for government by the India office; the government by dispatch must give way to government by vote. But the question was how India would be able to use the vote, and it seemed only reasonable that a few years of experiment should intervene. Only a few people in India now voted, whereas the work of Lord Southborough's committee would enfranchise millions of Indians. It was a question whether they would vote at all, and if they did, whether they would do so with intelligence. There must be a few years' trial of the new system in order that its application might be studied. It was necessary to devise a representative electorate. He was not in favor of communal representation, but if that was the only means of obtaining representative legislative councils, it must be accepted. He did not believe there was essential antagonism between the interests of any one section of the Indian people and any other. The pledges to the Mohammedans would be observed by the government, and an exception would be made in their favor, but he did not believe there was any necessity for separate electorates. The announcement of Aug. 20, 1917, promised the transfer of responsibility from the civil service of India to the people of India. The Indian civil service which had proved its great efficiency would still retain an honorable part under the new conditions. The reforms which were wanted for India should give the Indians the right to lead the way in the realization of their own destiny. Growth of parliamentary and self-governing institutions in India was an inevitable consequence of British rule. A joint committee reported on the government bill November 19th. It recommended among other changes the giving of greater financial powers to the Legislature, the fostering of free consultation between the two parts of the government, the appointment of two ministers in each province, the provision that the franchise should not be changed for the first 10 years, the reshaping of the council of state to form a true second chamber, the reduction of a part of the members in the Indian council, etc.

On the eve of the Christmas holidays a royal proclamation announced a new programme for India saying that it marked a new epoch in the history of India and that the law would take its place among the great measures voted by Parliament on behalf of the government and the people of India. The law was described as bestowing upon the representatives elected by the

people a more extended power than they had previously possessed and as preparing a way for a completely responsible government in the future. The King declared his confidence in the new popular Assembly as interpreter of the desires of those whom they represented and as guardian of the interests of the masses.

INDIANA. POPULATION. The population of the State during the year ending July 1, 1919, increased 18,000, the estimate for that date being 2,872,842. The population in 1910 was 2,700,876.

AGRICULTURE. The following table is compiled from a report of the federal Department of Agriculture, for December, 1919.

Crop	Year	Acreage	Prod. Bu.	Value
Corn	1919	4,750,000	175,750,000	\$219,688,000
	1918	5,000,000	165,000,000	196,350,000
Wheat	1919	2,886,000	46,020,000	96,642,000
	1918	2,353,000	49,427,000	102,808,000
Tobacco	1919	17,900	a 15,215,000	5,856,000
	1918	16,300	a 15,159,000	3,138,000
Hay	1919	2,200,000	b 3,080,000	66,528,000
	1918	2,270,000	b 3,292,000	65,182,000
Potatoes	1919	100,000	4,400,000	8,580,000
	1918	108,000	8,640,000	11,664,000
Oats	1919	1,825,000	60,225,000	41,555,000
	1918	2,025,000	85,050,000	56,984,000
Rye	1919	380,000	5,320,000	7,448,000
	1918	400,000	6,600,000	10,032,000

a Pounds b Tons.

See AGRICULTURAL EXPERIMENT STATIONS.

FINANCE. The latest available figures are those for the fiscal year ending Sept. 30, 1918. The balance on hand at that time was \$3,700,161; that of a year earlier, \$3,413,117. The receipts during this period amounted to \$13,660,371 while the disbursements were \$13,393,327.

TRANSPORTATION. The total railway mileage of the state in 1919 was about 7808. There has been little new construction of recent date.

CHARITIES AND CORRECTIONS. The institutions under the control of the Board of State Charities with situation, date of establishment, and population on Sept. 30, 1918, are as follows:

Reformatory, Jeffersonville (1821), 441. School for the Deaf, Indianapolis (1844), —. Central Hospital for the Insane, Indianapolis (1845), 1412. School for the Blind, Indianapolis (1847), —. Prison, Michigan City (1859), 1322. Boys' School, Plainfield (1867), 554. Soldiers' and Sailors' Orphans' Home, Knightstown (1867), 355. Woman's Prison, Indianapolis (1869), 105. School for Feeble Minded Youth, Fort Wayne (1879), 1409. Northern Hospital for the Insane, Logansport (1883), 934. Eastern Hospital for the Insane, Richmond (1883), 874. Southern Hospital for the Insane, Evansville (1883), 796. Soldiers' Home, Lafayette (1896), 710. Girls' School, Clermont (1903), 365. Southeastern Hospital for the Insane, North Madison (1905), 1176. Village for Epileptics, Newcastle (1905), 348. Hospital for Treatment of Tuberculosis, Rockville (1907), 150. Robert W. Long Hospital, Indianapolis (1911), 94. State Farm, Putnamville (1913), 471.

On Sept. 30, 1918 the total population of State and local charitable and correctional institutions was 17,471. Expenses for these purposes in 1918 may be divided as follows: state institutions, \$3,615,860; county poor asylums, \$903,453; dependent children, \$348,256; county jails, \$328,196; outdoor poor relief, \$427,469.

EDUCATION. The school revenue in 1918 was \$22,727,925. In 1918 there were 776,868 children of school age in the state, an increase of 2226 over 1917. The enrollment in the schools in this year was 564,152. The average daily wage was as follows: supervisors and special

teachers, \$4.32; high school principals, \$5.89; elementary school principals, \$4.58; high school teachers, \$4.35; elementary school teachers, \$3.31; teachers in consolidated grade schools, \$3.38; teachers in district schools, \$2.93. There were 20,066 teachers and supervisors.

OFFICERS. Governor, James P. Goodrich; Lieutenant-Governor, Edgar D. Bush; Secretary of State, William A. Roach; Treasurer, U. McMurtrie; Auditor, Otto Klauss; Attorney General, Ele Stansbury.

JUDICIARY. Supreme Court: Chief Justice, David A. Myers; Associate Justices, Lawson M. Harvey, Moses B. Lairy, Howard L. Townsend, John W. Spencer; Clerk, J. Fred France.

INDIANA, UNIVERSITY OF. A co-educational institution, conducted by the State of Indiana, at Bloomington, Ind. Like most colleges, the enrollment in the school year 1919-1920 was materially enlarged. The library contains over 100,000 volumes. The institution was founded in 1820. President, William L. Bryan, Ph.D.

INDIANS. According to the report of the Board of Indian Commissioners for the fiscal year ending June 30, 1919, a reorganization of the medical service was needed. Comment is made on the devotion to duty of the Indian service employees during the influenza epidemic in 1918-19. The need for a spirit of law and order was emphasized, for at present the Indians do not come under the State health, marriage, educational, and criminal laws. The self-supporting Navajo tribe was threatened with economic ruin, owing to their expansion, and a plan was under way whereby they would eventually become tax-paying citizens of New Mexico and Arizona. One of the most interesting developments in Indian progress, was their employment on the staple cotton fields in Arizona. Over 1000 Papago Indians left their homes in 1918-19 to work in the cotton fields. Several years ago the plan of releasing from government supervision all Indians having one-half white blood was instituted. This was not successful at first, but is now proving that the Indian can become a useful citizen, as well as relieving the congestion in parts of the reservation and allowing more room for expansion. The latest report of the supervisor of schools enumerates the total number of children of school age in the Five Civilized Tribes at 25,612. The total number enrolled in the public schools of Oklahoma (in aid of which Congress appropriated in 1919 \$250,000) was 18,869; in tribal boarding schools, 1347; in the contract schools, 585; in non-reservation schools, 837, which makes a total enrollment of 21,638. The supervisor estimated that over 3000 children were in no school at all. In the entire United States there were 22,972 Indian children who had no school facilities at all. The theory that full-bloods can be educated conjointly with the white children in the Oklahoma schools was proving false, and an increase in the tribal schools would have to be made.

The appropriation for the purchase of supplies laid before the House Indian Committee is \$500,000, for the fiscal year ending June 30, 1920. The value of the crop raised by the Indians on the 75 reservations on 370,101 acres of cultivated land in 1918, was \$9,781,862; the live stock owned by the Indians was valued at \$37,401,101. The total Indian population in 1918 in the entire United States was 336,243. See ANTHROPOLOGY.

INDIAN TRAINING AND INDUSTRIAL SCHOOL. This institution, established in 1879 at Carlisle, Pa., for the education of the American Indian, was permanently closed on Sept. 1, 1918. The property was turned over to the War Department, for hospital purposes.

INDIVIDUAL BARGAINING. See LABOR LEGISLATION.

INDO-CHINA. Known also as Farther India; the southeastern peninsula of Asia including the following divisions: Burma, politically attached to British India; Siam, an independent kingdom; French Indo-China including Annam, Cambodia, Cochinchina, Laos, and Tongking; the Federated Malay States; the Straits Settlements proper and the Malay states of Johore, Kedah, Perlis, Kelantan and Trengganu. See the articles FRENCH INDO-CHINA, BURMA, SIAM and the other principal states mentioned above.

INDUSTRIAL DISEASES. See OCCUPATIONAL DISEASES.

INDUSTRIAL RECONSTRUCTION. Immediately after the signing of the armistice, industry in this country tended to return to its pre-war basis. Not in war as long as was England, the war methods did not have as much chance to take root and were rather easily discarded. And so, one finds very little reconstruction due to the war. The field offering the greatest promise, is in the settlement of labor disputes, see ARBITRATION AND CONCILIATION. However, there has been much advance in labor legislation (q.v.) along such lines, especially, as child labor (q.v.). The prohibition amendment required the closing of saloons, breweries, etc., but the demand for buildings was such as to meet the supply, and it was quickly absorbed.

There have been a number of programmes drawn up for reconstruction work. For the programme of labor, see LABOR, AMERICAN FEDERATION OF. At the Farmers' National Conference on reconstruction, which was held in Washington on Jan. 6th-8th, a programme for reconstruction both in America and internationally was adopted. Besides presenting a scheme for demobilization, the conference presented the following resolutions as involving principles essential to international peace,—recognition of common interests of working peoples of all countries, regardless of form of government under which they live; international control over international trade and international investment; freedom of production and a uniform free exchange between all peoples; no secret treaties; gradual reductions of armament; power of declaring war to rest with the people.

The reconstruction programme of the National Catholic War Council is as follows: immediate dealing with the problem of unemployment, and a continuance of the United States Employment Service; continuance of the National War Labor Board; a minimum wage, with the understanding that wages should not be lowered below the war basis; relief of woman workers, equal pay for equal tasks, abolition of child labor; undertaking of municipal housing projects; reduction of the cost of living by development of coöperative stores; social insurance; collective bargaining; vocational training; development of co-operation and copartnership.

INTERNATIONAL. On January 31st, the Commission on International Labor Legislation was appointed by the Peace Conference as follows: "that a commission, composed of two represen-

tatives apiece from each of the five Great Powers, and five representatives to be elected by the other Powers represented at the Peace Conference, be appointed to inquire into the condition of employment from the international aspect, and to consider the international means necessary to secure common action on matters affecting the conditions of employment, and to recommend the form of a permanent agency to continue such inquiry and consideration in coöperation with and under the direction of the League of Nations." This Commission made its report March 24th, and the report, containing a draft convention creating a permanent organization for the promotion of international regulation of labor conditions, was accepted by the Peace Conference on April 11, 1919, together with certain amendments proposed by G. N. Barnes of Great Britain.

The Commission was composed as follows: United States, Samuel Gompers, Hon. E. N. Hurley; British Empire, Right Hon. G. N. Barnes, Sir Malcolm Delevingue; France, Mr. Colliard, Mr. Loucheur; Italy, Baron Mayor Des Planches, Mr. Cabrini; Japan, Mr. Otchala, Mr. Oka; Belgium, Mr. Vandervelde, Mr. Mahaim; Cuba, Mr. De Bustamante; Poland, Count Zolowski, afterwards replaced by Mr. Patek; Czecho-Slovakia, Mr. Benès, afterwards replaced by Mr. Broz. The commission held 35 meetings. Its report was in two parts. The first part is a draft convention proposing a permanent international organization. The second part is the commission's conclusions with regard to the declarations of principle concerning matters of vital import to the labor world.

The first part of the report provides for an International Labor Conference, and an International Labor Office. The Conference will meet at least annually, and each nation shall send an equal number of delegates. The International Labor Office will be established at the seat of the League of Nations as part of the administrative organization. This Office will be governed by a controlling body of 24 members.

The second part of the report consisted of the following clauses which were adopted by the Peace Conference and incorporated into the treaty: "The guiding principle above enunciated that labor should not be regarded merely as a commodity or article of commerce. The right of association for all lawful purposes by the employees as well as the employers. The payment to the employees of wage adequate to maintain a reasonable standard of life as this is understood in their time and country. Adoption of an 8-hour day or 48-hour week as standard to be aimed at where it has not been already attained. Adoption of a weekly rest of 24 hours, which should include Sunday whenever practicable. Abolition of child labor, and imposition of such limitations on the labor of young persons as shall permit the continuance of their education and assure their proper physical development. Principle that men and women should receive equal remuneration for work of equal value. Standard set by law in each country with respect to the condition of labor should have due regard to the equitable economic treatment of all workers lawfully resident therein. Each state should make provision for a system of inspection in which women should take part in order to insure the enforcement of laws and regulations for the protection of employees."

GREAT BRITAIN. In January, the Miners' Federation of Great Britain presented to the government claims for a readjustment of their position, covering four points—a 30 per cent wage increase and retention of war bonuses, a six hour day, specified provisions for demobilized miners, and the nationalization of the coal mines. To these demands, the government submitted a reply February 10th, offering an increase in wages of one shilling per day, and proposed to set up a committee of inquiry for which the miners might nominate their own representatives, to inquire into matters raised and the position of the coal trade generally. The miners found this reply unsatisfactory. A strike ballot was prepared and sent out, the question being whether the government's offer should be accepted or whether the miners should strike. The Miners' Federation has a membership of 750,000 members; the vote stood 611,998 against acceptance and 104,997 for. A compromise was at last agreed upon by which the executive committee of the Miners' Federation was to recommend a postponement of the strike date to March 22d, provided, first, the commission should render an interim report on hours and wages by March 20th, and secondly, the miners to choose half the members of the commission. This bill was rapidly passed and received the royal assent on February 26th. The commission was immediately appointed, its personnel being as follows: Chairman, Mr. Justice Sankey; representing employers in general, Arthur Balfour, Sir Arthur Duckham, and Sir Thomas Royden; representing mine owners, J. T. Forgie, R. W. Cooper, and Evan Williams; representing labor in general, Sir Leo C. Money, Sidney Webb, R. H. Tawney; representing miners, Robert Smillie, Frank Hodges, and Herbert Smith.

The hearings were very completely reported in the newspapers, and public interest was widely aroused. On March 20th, three interim reports were finally presented. Upon the receipt of these reports, the government adopted that signed by the chairman and the representatives of the employers, known as the Sankey report, with slight changes, offering its conditions for wages and hours to the miners, and promising further hearings on the question of nationalization. On the question, the Miners Federation voted—for acceptance, 693,004; against acceptance, 76,992.

The commission resumed hearing on April 23d, with the same personnel, save that Sir Thomas Royden and Mr. J. T. Forgie retired and their places were taken by Sir Adam Nimmo and Sir Allan M. Smith. On June 20th, the commission issued its report. As in the earlier case, the different groups issued different reports. However, the men reported as follows: as to ownership, there was unanimity that this ownership should vest in the nation itself; as to the means of acquisition, the commission stood ten to three in favor of compensating the present owners; on the question of management, seven were in favor of state managership, and six desired the retention of authority by the owners.

This report was presented to Parliament for action. However, the Coal Bill had not reached its second reading on December 23d, and it seemed to be the sentiment, as stated in the *Manchester Guardian*, that the "Coal Bill was placed in Parliament's moratorium."

INDUSTRIAL WORKERS OF THE WORLD. The Industrial Workers of the World, more commonly known as the I. W. W., is an American labor organization founded on principles that find expression in one part of the labor movement throughout the world. It stands for Industrial as opposed to Trade unionism, and aims ultimately for the centralization of the workers of all industries in one large union. Its membership, contrary to popular opinion, is not largely composed of foreigners, but of men of American birth engaged for the most part in migratory occupations such as lumbering and harvesting. Since voting is dependent on fixed residence, a considerable number of these men are automatically disenfranchised. This condition must be considered as a factor in the I. W. W. contention that nothing is to be gained through political activity, and that, accordingly, their programme must be installed by direct industrial action. This programme calls for the replacement of the capitalist or competitive system of production by a system in which the machinery of production is owned and operated by the workers themselves. Adequate figures as to the numerical strength of the organization are not available. In November, 1917, the late Carlton N. Parker estimated their membership at 75,000, but he qualified this estimate by stating that "in the history of American labor there has appeared no organization so subject to fluctuation in membership and strength." The *One Big Union Monthly* for December, 1919 (an official I. W. W. magazine), states that there has been a growth of 50,000 in membership from Sept. 1, 1918 to Sept. 1, 1919, and that the last three months of the year show an even greater ratio of increase.

In connection with the general condemnation of the I. W. W. during the War (see *YEAR BOOK*, 1918), it is worthy of note that many I. W. W. local unions engaged in war industries without disturbance, and that government investigations of widely published charges to the effect that strikes were being financed by German money, showed the books of the organization in good shape, and no evidence to support the accusation.

The past year has seen a continuation of governmental action against the I. W. W. Many of its members have been arrested in connection with government activity against radical groups in general, and a number have been deported. Throughout the country I. W. W. halls have been raided by local authorities and by the United States Department of Justice. Literature has been seized, and leaders arrested. Prosecutions, for the most part, have been brought under war-time sedition legislation.

On January 23d, in Sacramento, Cal., 46 members of the I. W. W. were convicted and sentenced to terms ranging from one to 10 years in Leavenworth penitentiary. The trial received wide notoriety because of the "Silent Defense" employed by 43 of the defendants; these men refused to testify in their defense in order to express their conviction that the court was incapable of rendering them justice, and were sentenced without having broken their silence. At the end of the year trials against I. W. W. members were being conducted in Michigan, Nebraska, California, Washington, Oregon, and Kansas. It was charged by W. D. Haywood, the

I. W. W. Secretary (himself recently released from Leavenworth on \$15,000 bond, after having served 11 months of a 20 year sentence), that the Kansas prisoners had been held in jail for over two years, two indictments having been quashed, and were then being brought to trial on a third indictment.

The most conspicuous happening of the year in which the I. W. W. figured, occurred at Centralia, Wash., a town in the heart of the lumbering district, on Armistice Day, Nov. 11, 1919. A parade of overseas veterans was fired upon from an I. W. W. hall, and six of the paraders were wounded, four seriously; three of these died a few days afterwards, and another man was killed in the chase that followed the riot. Conflicting reports of the affair were circulated. The press of almost the entire country reported that the I. W. W. had attacked without warning or provocation. However, the *Seattle Union Record*, a paper run by unions affiliated with the American Federation of Labor, announced that all press reports of the affair were untrue, and that it would publish the facts, but the edition which carried the promised news item was suppressed by the Federal Authorities. I. W. W. publications state that the parade had halted before the door of the hall, that the paraders had attacked, and started to batter down the door before a shot was fired, and that therefore the shooting was in self-defense and justifiable under the law. This contention was corroborated, in a measure at least, by evidence presented at the coroner's inquest, where Dr. Frank Bickford, a local merchant who witnessed the attack, testified that the paraders had halted and rushed the door before they were fired on. Great excitement followed the disturbance, and certain citizens of Centralia entered the jail where captured I. W. W.'s had been confined, seized upon one of them whom they supposed to be Britt Smith, the secretary of the I. W. W. local, and after taking him into the open, lynched him. The victim was afterwards found to be Wesley Everetts, a member of the I. W. W., and according to his friends, an overseas veteran. A general round up of all known I. W. W.'s was made, but the cases had not been decided by the end of the year.

Of interest also, is the recent development of the "One Big Union" movement in Canada and Australia. In Canada this movement had its birth in the general strike called in Winnipeg on May 15, 1919, in support of striking building and metal trades workers. From that time to the present the O. B. U. has grown very extensively. It is modeled on almost the exact lines of the I. W. W., and its preamble seems to have been largely borrowed from that of the American organization. It stands for industrial unionism and class consciousness, declaring that "when-ever a strike in any industry or district takes place, no member of the O. B. U. shall handle directly or indirectly any product of the industry on strike." A convention was held in Calgary on June 5th, and there the locals attending severed their relations with the American Federation of Labor. The Australian movement has been on foot since the middle of 1918. The organization there, the Workers Industrial Union of Australia, commonly known as the "One Big Union," like the Canadian body seems to have sprung from I. W. W. propaganda, and it too has adopted the I. W. W. platform and litera-

ture with slight alteration. It has reached proportions sufficient to make it a matter of concern to government officials, and to attract considerable attention in British official and semi-official publications.

I. W. W. publications point to syndicalist movements in various countries of the world, as either directly reflecting or furthering I. W. W. aims and principles. The *One Big Union Monthly* for December, 1919 states (without statistical evidence), that the movement has gained footing in Mexico, and throughout South America, citing an I. W. W. organization of 2800 marine transport workers in Buenos Ayres as an example; and that the syndicalist movement is growing in France, Italy, Russia, Spain, England, Scandinavia, Germany and Greece.

INFLUENZA. Inasmuch as the great pandemic of 1918 appeared in two or three successive waves with an interval of from two to three months between them, while the latest of these prevailed in the winter and spring of 1919, it does not now seem that the original disease can return in its original shape. If we have an outbreak of the disease during the winter of 1919-20, it would be probably difficult to distinguish it from the ordinary endemic winter grippé which visits us annually. The statement that the latter form of grippé dates only from the older pandemic of 1889-90 is only partly true, for in some parts of the world the existence of an endemic winter grippé had been recognized before that epoch. Thus it was well known in Minnesota, and was described by a medical man of that State in a classical manner before the said pandemic had started from its Asiatic source. From the viewpoint of successive waves of the recent pandemic, the United States were somewhat fortunate for they not only escaped the first of the waves in the summer of 1918, but a third wave which occurred in certain countries—Finland is one—in the winter of 1918-19. In our country during that period we had only ordinary winter grippé which partook somewhat of the nature of the pandemic and was perhaps modified by it but was clearly only our regular annual visitor. A comparison with the disease seen in Finland shows that the latter, which followed a first wave in the fall, was fully as deadly as its predecessor. In most countries the first wave was relatively mild and the second severe, while exceptionally the first wave was the worst or as seen in Finland the two were of equal severity. The United States, as already implied, had its one wave in the fall and it was most severe. That they escaped the first wave was due to the fact that the infection did not arrive at our shores until the close of the summer. Why there was no second wave with us and our cis-Atlantic neighbors is not easily surmised although a reappearance of the infection in 1919 was exceptional.

We are now in position to estimate the damage done by the entire pandemic and to contrast it with the losses which resulted from the war. This has been done by Laumonier in the *Gazette des hôpitaux* for Sept. 30 and Oct. 2, 1919. He computes the total duration of the pandemic as 11 months, or from May, 1918, to March, 1919. The earlier estimates were silent on the occurrence of the pandemic in China and certain parts of the Far East, but we know that it prevailed everywhere and was very deadly in the large Chinese coast cities and in Siam. We know

something of its ravages in British and native India and that 5,000,000 to 6,000,000 deaths is not an extravagant estimate, for that region alone. Allowing for analogous mortalities in central Asia and the Far East the world mortality could easily have exceeded 25,000,000, a figure seen only once before in the world's history when the Black Death ravaged Europe in the fourteenth century. The fear of many people that the pandemic of 1918 was the lung plague or pestous pneumonia seems almost ludicrous now for influenza showed itself by much the more serious malady. The plague destroys its hundreds of thousands annually in parts of Hindustan but when influenza reached those states it exacted a far heavier toll in a few months time. The total number of deaths amid the warring nations among the soldiers at the fronts is computed as not over 7,000,000 during a period of 51 months. Hence while warfare killed at the rate of 137,000 per month the disease slew at the rate of 2,436,000 a month; in other words the difference in favor of disease was 20-fold.

Despite the heavy death tolls so many people were smitten with the disease that death percentages remained low. There were exceptions, however, for in Samoa of 30,000 inhabitants 8000 perished from the visitation. Similar figures were seen in other Polynesian peoples, including the Maoris of New Zealand. Of other countries and peoples 10 per cent of those attacked and 2 per cent of the entire population appear to be the top figures for fatalities.

INORGANIC CHEMISTRY. See **CHEMISTRY, GENERAL PROGRESS OF.**

INSANITY. The Fifth Report of the British Lunacy and Mental Deficiency Board of Control brings to light the startling fact that for the past two years the mortality among the interned insane and defective population has increased to an alarming extent. This has attained a ratio of 208 cases of death to each 1000 of these unfortunates. The report attributes this terrible figure largely to the food supply and it is especially interesting to learn that from the viewpoints of calory requirements the diet was sufficient. The trouble lay in the fact that the ration was either unbalanced, or the food selection was such that certain articles essential to health were wanting. The diet was defective in milk and fats, and according to modern teaching one should therefore accuse lack of vitamins in the ration. Yet the dead did not develop any clear cut deficiency disease, like scurvy, nor is there any evidence of anything like pellagra, which in countries where the latter affection flourishes is responsible for much insanity and eventually death in the insane. The actual causes of death comprise tuberculosis, diarrhea, dysentery, typhoid fever, etc. Undoubtedly other factors were present and one is cold weather with insufficient heating and clothing. This in turn was due to lack of fuel owing to the war. It is a well known fact that warm clothing has its exact equivalent in food and that a man who has plenty of warm bedding and under-clothing with proper protection against out of door rigors needs considerably less fuel food than one lacking in those necessities. It is evident that the lunatic, who seems to have suffered much more than the mental defective, needs an excess ration rather than one computed for the average man; for in the main he is indifferent to his necessities and as in the case of children

should be given the benefit of all uncertainty in this respect. Other and indirect factors were inadequate staffs, overcrowding, and in general the tendency to temporary makeshifts during the war. The great number of deaths has notably reduced the number of certified insane. The unfavorable conditions will be remedied as soon as possible.

INSECTS. See **ZOOLOGY.**

INSTITUTE OF MUSICAL ART. See **MUSIC, General News.**

INSURANCE. Although the War Risk Insurance Bureau was doing a larger business than all the private life insurance companies put together, the latter companies continued in the year 1919 to increase considerably in size and prosperity. A number of new companies began business and all those which had been taken over in the preceding year by the alien property custodian were completely liquidated. The following statistics show the financial status of the various types of insurance companies as compiled from their annual statements after being audited.

LIFE INSURANCE. The Sixtieth Annual Report of the superintendent of insurance of the State of New York (July, 1919) showed that there were 40 life insurance companies doing business in that State on Dec. 31, 1918. Here were included 15 New York State companies and 25 companies of other States. The total assets of all these companies were \$5,915,687,963; liabilities, \$5,668,239,682; number of policies in force, 10,197,730; amount of insurance in force, \$20,196,274,253; and surplus for policy holders, \$247,448,280. The assets included among other items the following: Stocks and bonds, \$2,994,408,478; mortgage loans, \$1,775,796,382; loans to policy holders, \$713,087,748. The principal items of liabilities were: Reinsurance reserve, \$4,905,592,790; capital, \$12,464,000; surplus and special funds, \$234,984,000; and claims adjusted and unadjusted, \$66,245,653. The aggregate income of the 40 companies during the year 1918 was \$1,315,471,392, of which the principal items were: Premiums, \$866,269,808; interest and dividends, \$250,769,900. The excess of income over disbursements was \$431,181,380. Aggregate disbursements were \$885,003,692, of which the principal items were: Claims paid, \$414,776,865; lapsed, surrendered, and purchased policies, \$90,543,453; dividends to policy holders, \$137,601,546; dividends to stockholders, \$1,243,327; commissions, \$80,973,660; salaries and medical fees, \$75,747,345. During the year there were issued, revived, and increased, 1,336,230 policies, aggregating \$3,185,769,655, a decrease of about 50,000 policies over the preceding year but an increase in the aggregate amount of policies of \$175,000,000. The number of policies terminated during the year was 656,441; of these 132,367 were terminated by death, an increase of 50,000 over the preceding year; 45,851 by maturity; 155 by disability; 76,545 by expiry; 125,533 by surrender; 272,187 by lapse; and 3803 by decrease. The total amount of all policies terminated was \$1,446,873,963. The net increase in policies outstanding was 683,157 and the net increase in insurance in force was \$1,742,741,848. The following figures represent the distribution of the policies and of the insurance in force among the different kinds of policies: Whole life, 6,632,836 policies representing \$13,562,689,221 insurance; endowment, 2,915,809 policies

representing \$4,068,681,947 insurance; all others, 649,085 policies representing \$2,416,492,732 insurance. These New York State companies are estimated to represent about nine-tenths of the insurance business transacted in this country.

FIRE AND MARINE INSURANCE. There were 257 fire and fire marine companies doing business in New York State at the close of the year 1918 besides 26 companies doing exclusively a marine business. The aggregate resources of these 283 companies were \$1,090,365,673, an increase of \$112,759,639 as compared with 1918. Their aggregate liabilities were \$652,325,780, an increase of \$79,410,243 over the return of the preceding year; their income, \$758,561,673; disbursements, \$621,806,671; premiums written, \$677,091,593; and losses paid, \$311,617,276. The 257 fire and fire marine companies included 146 American joint stock companies, 58 foreign joint-stock companies, and 53 mutual companies. The total amount of risks in force in these companies was \$86,243,766,000. The strictly marine companies included 9 domestic joint-stock companies, 1 New York mutual, and 16 foreign joint-stock companies. They had an aggregate of more than \$5,125,745,604 of risks in force.

CASUALTY, FIDELITY, SURETY, AND CREDIT INSURANCE. These companies cover a large variety of types of insurance such as employer's liability, workmen's compensation, burglary losses, business losses, automobile accidents, health, and other contingencies. The report of the New York State Insurance Department (September, 1919) showed that on Dec. 31, 1918, there were 78 such companies doing business in that State as compared to 74 the year before, 71 in 1916, 77 in 1915, and 79 in 1914. Their assets aggregated \$352,613,531, an increase over 1917 of \$69,934,709. Their liabilities, exclusive of capital and surplus, were \$249,542,121 as compared with \$190,767,000 in 1917. Their premiums amounted to \$276,759,192 as compared with \$221,804,778 for 1917 and \$168,590,000 for 1916, and \$139,072,000 for 1914. They paid claims totaling \$97,148,833 in 1918, and \$84,599,000 in 1917, out of a total amount of disbursements of \$221,762,127. For investigation and adjustment of claims \$13,165,231 was paid. Dividends in 1918 were \$9,060,462 on capital and surplus amounting to \$103,071,407, as compared with \$6,191,000 in 1917 on capital and surplus amounting to \$91,911,000. Sources of income were as follows: Accident, \$29,186,560; health, \$8,520,840; liability, \$61,108,824; workmen's compensation, \$111,236,589; fidelity and surety, \$29,322,591; plate glass, \$6,845,978; steam boiler, \$4,310,115; burglary and theft, \$8,140,302; automobiles and teams, \$11,930,792; workmen's collective, \$250,473; other classes, \$5,906,032.

TITLE AND MORTGAGE INSURANCE. The same report showed 12 title and mortgage concerns with \$112,341,741 assets; liabilities, except capital, \$57,406,741; capital, \$24,785,000; surplus, \$30,149,960; income, \$11,442,594; and disbursements, \$11,380,331, for the year 1918.

FRATERNAL INSURANCE. The following statistics on fraternal orders which have insurance features cover only those societies which operate in the State of New York. There are several hundred of these fraternal societies scattered throughout the United States but as most of them are of a distinctly local nature accurate information concerning their financial status is not available. The New York superintendent of

insurance issued a report covering 73 societies operating in that State. They showed combined assets of \$216,638,547; liabilities, \$92,534,733; income, \$192,946,210; disbursements, \$93,447,929; total insurance in force, \$6,570,818,322.

A few of the larger societies with the amount of insurance in force on Dec. 31, 1918, were as follows: Aid Association for Lutherans, \$10,780,754; Artisans' Order of Mutual Protection, \$17,826,500; Ben Hur, Supreme Tribe, \$75,964,709; Brith Abraham, Independent Order, \$97,736,000; Brith Abraham, U. S. Grand Lodge, \$16,135,000; Brotherhood of American Yeomen, \$322,177,000; Catholic Benevolent Legion, \$12,818,250; Catholic Knights of America, \$19,580,000; Catholic Mutual Benefit Association, \$52,709,700; Columbian Circle, \$22,101,000; Foresters, Independent Order, \$170,999,917; Fraternal Mystic Circle, \$12,807,000; French Canadian Artisans' Society, \$33,790,383; United Order of the Golden Cross, \$15,079,175; Knights of Columbus, \$137,214,343; Knights of Pythias Insurance Department, \$96,365,445; Ladies' Catholic Benevolent Association, \$117,631,250; Ladies of the Maccabees, \$31,256,750; Maccabees, \$354,254,160; Modern Woodmen of America, \$1,644,662,000; National Protective Legion, \$11,985,000; National Slovak Society, \$31,117,750; National Union Assurance Society, \$91,202,000; Order of the Golden Seal, \$13,189,000; Order of the United Commercial Travelers of America, \$373,205,000; Polish National Alliance, \$70,366,000; Protected Home Circle, \$87,087,000; Royal Arcanum, \$228,009,000; Royal Neighbors of America, \$378,351,000; Serb Federation "Sloga," \$11,579,000; Slovenic National Benefit Society, \$12,082,450; Travelers Protective Association of America, \$331,210,000; Women's Benefit Association of the Maccabees, \$138,492,000; Woodmen Circle, Supreme Forest, \$210,876,600; Woodmen of the World, Sovereign Camp, \$1,187,718,000; Workmen's Circle, \$16,872,600; Workmen's Sick and Death Benefit Fund, \$13,081,000.

WAR RISK INSURANCE. Almost immediately upon the entrance of the United States into the war, plans for compensating soldiers and sailors for injuries and insuring them against loss of life were proposed. A plan was finally adopted on Oct. 6, 1917, providing compensation and insurance. The aggregate amount of insurance carried by the War Risk Insurance Bureau, which was organized to handle the situation, was approximately \$36,000,000,000 in May, 1919, the sum being divided among some 4,000,000 policyholders. Its activities are broadly divided into five general divisions: Allotments and allowances, compensation for disability and death, insurance, reeducation, and civil relief measures. The life insurance feature of the undertaking is probably its largest phase, while the compensation for disability is the most complicated. Having begun operations in the basement of the treasury building with a staff of 20 employees a year and a half ago, the bureau now occupies a 10-story building, engages the services of 14,000 clerks, and has a vast staff of inspectors and investigators busy throughout the country.

Up to May, 1919, death awards for insurance amounting to \$785,613,500 had been made by the bureau to 102,286 beneficiaries, and 139 awards with a commuted value of \$804,500 had been made for total permanent disability of insured men. Under the provision which provides com-

pensation for dependents in case of death, exclusive of whether or not the man in service held an insurance, there had been made 19,295 awards with monthly payments of \$458,403. Compensation for disability is paid by the bureau to 14,975 beneficiaries with monthly payments of \$411,366. Claims for insurance awards for deaths were being filed at this time at the rate of approximately 350 a day and awards were being made at the rate of 500 a day. Claims for compensation due to disability were filed at the rate of over 500 a day. Burial expenses for men who died in the service have been paid by the bureau in 19,225 cases at an expense of \$1,358,436.

The life insurance phase of the war risk plan is in addition to the compensation and disability benefits and provides protection to the insured or his dependents in amounts ranging from \$1000 to \$10,000. Practically 95 per cent of the personnel of the army, navy, and nursing corps are insured with an average figure of \$8700. The government has strongly advised the holders of these policies to convert them immediately into any one of the following six types of insurance policy: Annual premium policy, 20 payment life, 30 payment life, 20-year endowment, 30-year endowment, and endowment maturing at the age of 62. The advantages in converting the original policies as outlined by members of the War Risk Insurance Bureau are that the new policies would have a loan value, a cash value, paid-up policy rates, and extended insurance rates.

See FIRE PROTECTION, SOCIAL INSURANCE, and WORKMEN'S COMPENSATION.

INTERALLIED AND NEUTRAL COÖPERATIVE CONFERENCE. See COÖPERATION.

INTERALLIED COÖPERATIVE CONFERENCE. See COÖPERATION.

INTERCHURCH WORLD MOVEMENT, OF NORTH AMERICA. Founded on Dec. 17, 1918, this is an organization whose main principle is a thorough-going plan of coöperation between evangelical churches in North America in their entire educational missionary programme at home and abroad. The first meeting was called by the Southern Presbyterian Church in New York City where a committee was appointed to form a plan for the closer coöperation of churches, and this plan was later endorsed by 59 mission societies. The plan recommends a general survey of the foreign missionary fields, a united budget, a united missionary educational programme to acquaint the people of the home churches with the missionary movement, a united financial appeal, and a united programme of actual field work. A conference was held in Cleveland on April 30, 1919, where the movement was put on a firm basis, as it was found to have passed the preparatory stages. At the end of 1919 much work had been done in rural counties where 797 county supervisors have been appointed. Chairman of the Executive Committee is John R. Mott; and secretary, William B. Miller. Headquarters are maintained at 111 Fifth Ave., New York City.

INTERNAL REVENUE. See LIQUORS AND TOBACCO.

INTERNAL WATERWAYS. The development of the Ohio River from Pittsburgh to its mouth at Cairo, in order to secure a nine-foot stage of water, was begun by the Federal government in 1908 under the direct charge of the United States Engineer Department. This work

consisted largely in the construction of docks and movable dams, and while by 1919 it had exceeded the \$64,000,000 originally estimated for the construction, yet considerable progress had been made in the work. At the end of the working season of 1919, 29 locks and dams had been completed and were in operation, while 15 were under construction. Nine locks and dams provided for in the original project had not yet been commenced, and in one case a project had been eliminated entirely. These locks and dams begin just below Pittsburgh, and extend down the river for a distance of nearly a thousand miles, Project No. 54 being located at Mound City, Ill.

CANADIAN WATERWAYS. The first Canadian Waterways Convention was held at Windsor, Ontario, Nov. 18, 1919, with the object of effecting an organization to further the project of a great inland waterway from the Atlantic to Lake Superior. It was believed that only in this way could the needs of the great Northwest be taken care of, as the railroads had failed to handle the great productions from this region. At an expense of \$100,000,000, or less than one-fifth the cost of the Panama Canal, the St. Lawrence River could be deepened, and with the present enlargement of the Welland Canal, access could be had for large vessels to the Great Lakes. An organization was formed under the name of the Canadian Deep Waterways and Power Association, and resolutions were adopted favoring the Great Lakes-Welland-St. Lawrence route to the ocean, and declaring that one of the objects of the association was to be securing the development and deepening of the St. Lawrence waterways system along the lines on which the Great Lakes-St. Lawrence Tidewater Association was working. This project was the subject of considerable discussion during the year both as to its effect on American commerce and industry and as to whether from the standpoint of the Dominion the outlay was justifiable.

INTERNATIONAL LABOR LEGISLATION, COMMISSION ON. See INDUSTRIAL RECONSTRUCTION.

INTERNATIONAL LANGUAGE. While so many problems of reconstruction are pressed to the front, the representatives of International Languages fail to get much hearing; but they are more convinced than ever of the excellence of their cause; if only people had listened to their advice earlier, agreement might be much easier to-day in so many formidable questions. So they all continue their propaganda with much conviction. (1) The believers in the *Projet Chappelier* (see former YEAR BOOKS) are trying to derive much advantage from the present friendly feelings between French and English speaking people. See Albert Dauzat, *Le français et l'anglais, langues internationales de demain*, in *Revue mondiale*, May 1, 1919. (2) The Idists are working hard by throwing on the market grammars, dictionaries, and textbooks which, they think, must convince whoever compares them with Esperanto books that *Ido* is really the better language of the two. The editor of one of the European periodicals for *Ido* has elicited the following letter from the:

American Commission to Negotiate Peace,
Place de la Concorde, Paris, Jan. 13, 1919.

Sir:

I am requested by President Wilson to acknowledge receipt for your letter in which you

call his attention to the usefulness of an Universal Language. The President wishes me to say in answer, that he is convinced that this question will be thoroughly investigated by competent authorities when the League of Nations is once established.

For the President,

GIBERT CLOSE.

(3) As to the Esperantists, possibly with a view to counteract the sad use made of Esperanto by Germany for propaganda purposes during the war, they have tried another move, namely, to appeal to advanced internationalists and socialists; they claim they are "making excellent progress among the liberals and radicals of this country." (For information, address 2633 Creston Ave., New York.) (4) Finally we must record a move long contemplated, to bring about by mutual concessions a reconciliation between Idists and Esperantists, namely, the launching of the Esperantidist movement (with central quarters in Bern, Switzerland, 10 Hotelgasse). The leader is Dr. R. de Saussure; the honorary president is Dr. A. Forel, the famous scientist. Esperantido is a simplified Esperanto, but with less radical reforms than those proposed by Ido. The guiding principle of Dr. de Saussure is: "To tell all which is necessary and only what is sufficient for clear understanding." Those who have studied artificial languages will appreciate the really useful element thus introduced into the discussion. For years Dr. de Saussure has been working on this problem. The first number of their monthly periodical *Internacia Linguo Esperantida* is dated November, 1919.

The "Academia pro interlingua," established in 1887 by followers of Volapuk, has since then carried out investigations on the subject of the international language, and now stands for a simplified Latin, adopting all words common to western European languages and reducing grammar to a minimum. Its president is now Prof. G. Peano of the University of Turin, Italy.

It is Professor Peano's opinion that all international languages recently invented are like dialects of a common one, based on Latin.

INTERNATIONAL TRADE UNION CONFERENCE. See **TRADE UNIONS.**

IOWA. POPULATION. By the Federal census, on April 15, 1910, the population of the State was 2,224,771, a decrease since 1900. By the State census of 1915 there was a population of 2,358,066. This is the latest available estimate.

AGRICULTURE. The following table is compiled from a report of the federal Department of Agriculture.

Crop	Year	Acreage	Prod. Bu.	Value
Corn	1919	10,000,000	416,000,000	\$499,200,000
	1918	9,800,000	352,800,000	430,416,000
Oats	1919	5,670,000	196,182,000	125,556,000
	1918	5,823,000	244,566,000	156,522,000
Wheat	1919	1,700,000	23,675,000	47,350,000
	1918	1,240,000	23,382,000	46,764,000
Hay	1919	3,140,000	5,181,000	90,149,000
	1918	3,235,000	4,206,000	76,549,000
Potatoes	1919	115,000	4,945,000	9,494,000
	1918	128,000	9,216,000	12,257,000

a Tons.

FINANCE. According to the report of the State Treasurer, the balance on hand on July 1, 1910, was \$717,825 and on June 30, 1918, it was \$2,125,644. The total receipts during this

period amounted to \$20,806,476, while the total disbursements were \$19,398,657. The State has no bonded debt, but on Jan. 1, 1918, the floating debt amounted to \$1,565,051, a net debt of \$1,293,885.

TRANSPORTATION. The total of single track in the State in 1919 was 9935 miles. The grand total of mileage was 13,822. Very little construction has been undertaken in the last three years, only .75 miles of new first track being built in 1919.

CHARITIES AND CORRECTIONS. The following institutions are under the control of the Board of Control: five state hospitals, the Sanatorium for the Treatment of Tuberculosis, a Soldiers' Orphans' Home, a Soldiers' Home, an institution for feeble minded children, training schools for boys, and for girls, the Penitentiary, the Reformatory, and a Women's Reformatory. Expenditures for a year approximate \$1,500,000.

OFFICERS. Governor, W. L. Harding; Lieutenant-Governor, Ernest R. Moore; Secretary of State, W. S. Allen; Treasurer, E. H. Hoyt; Auditor, F. S. Shaw; Attorney-General, H. M. Havner.

See **CHILD LABOR; ROADS.**

IOWA, UNIVERSITY OF. A co-educational State institution, at Iowa City, Iowa. In the summer session of 1919 there were registered 577 men and 713 women; in the fall there were 2445 men and 1469 women, a total of 3914. In the fall there were 438 members in the faculty, not including 60 holding minor positions; 177 additions to the faculty were made in 1919. The library contains 153,700 volumes. During the year there were constructed a men's dormitory with 300 beds and a cafeteria, a children's hospital, a nurses' home, a psychopathic hospital, and an armory. The relatively great increase of interest in courses in commerce and vocational subjects has been marked in the last few years. The university was founded in 1847. President, Walter Albert Jessup, Ph.D.

IRELAND. See **GREAT BRITAIN.**

IRON. See **CHEMISTRY, INDUSTRIAL.**

IRON AND STEEL. After the signing of the armistice the steel producers endeavored to find a sound basis for transacting a normal volume of business. It was their desire to set a price level that would encourage consumption, invite orders, and be reasonably profitable to the industry. In view of the fact that capacity had increased nearly 40 per cent, it seemed doubtful to some producers that a demand could be found sufficient to keep output up to capacity. They therefore desired to have the war-time prices continued, in the hope that this high figure for peace times would give them a sufficient return on a smaller volume of business to carry their enlarged plants successfully.

The first general price reduction was made by the publishing of a list of prices prepared by the general price committee of the American Iron and Steel Institute to be submitted to the War Industries Board. However, as the board was about to disband, it refused to receive it. The first reductions were effective Dec. 12, 1918, for steel, but recognition of the reductions on pig iron was withheld by the merchants until Jan. 2, 1919. These resulted in a reduction of \$3 per gross ton on all pig iron, and the reductions on finished steel lowered the average price for the whole list by about \$4.25 per net ton. The second reductions were specified in an agreement

between representatives of the iron and steel industry and the Industrial Board appointed by Secretary Redfield. They involved decreases of \$4.25 on pig iron and an average of about \$6.70 for steel. Thus the total reductions were \$7.25 on pig iron and approximately \$11 a net ton on steel.

According to certain authorities, a mistake was made in arranging these reductions so that while the prices of steel products were lowered about 14 per cent, a reduction of 22 per cent was made in pig iron. This caused dissatisfaction among the merchant furnaces who were thus required to sell pig iron at a restricted price to foundry interests that were scarcely restricted as to price at all. The large establishments who were not obliged to secure their pig iron because they were manufacturing it themselves were not bothered by this arrangement.

The blast furnaces found an opportunity to advance prices in the last three months of the year. The advance carried prices some \$3 a ton above the war level. This proved embarrassing to the United States Steel Corporation which was endeavoring to keep steel prices down to the price level of March 21st. With a view to stimulating construction which creates the largest demand for steel, the steel industry made two reductions. Obvious signs that the general level of commodity prices was rising caused the abandonment of any further thought of reductions in May. The Steel Corporation and some of the larger independents held the prices of March 21st at the close of the year though some sellers were obtaining advanced prices. This was estimated to be only 81 per cent above their 10-year average before the war, on the basis of weighted averages, compared with an advance of commodity prices of around 135 per cent.

WORLD'S PRODUCTION. As will appear later in the present summary this troubled and uncertain condition in no way was confined to the United States but was practically universal and in Europe was still further complicated by the economic and political situation following the great war in which iron, along with coal, figured so conspicuously at every stage and by no means the least in the attempted settlement. Therefore it is of advantage to consider briefly the iron and steel situation of the world generally prior to 1919 as well as developed during that year. An interesting series of tables giving the output of iron and steel in the principal countries of the world was issued in England by the National Federation of Iron and Steel Manufacturers. It shows the output of pig-iron for the leading countries from 1900 to 1918 inclusive, and may be summarized as follows:

In 1900 the United Kingdom produced 8,900,000 tons; United States produced 13,789,000 tons; Germany produced 8,521,000 metric tons; France produced 2,714,000 metric tons.

In 1918 corresponding figures for pig-iron were:

United Kingdom	tons..	9,066,000
United States	do...	39,052,000
Germany	metric tons	11,590,000
France	do...	1,297,000

The years of the largest output of pig-iron were the following:

Y-B-19-12

1918, United Kingdom	tons..	10,260,000
1916, United States	do...	39,435,000
1913, Germany	metric tons	19,292,000
1913, France	do...	5,207,000

The figures for the steel output in 1900 were:

United Kingdom	tons..	4,901,000
United States	do...	10,188,000
Germany	metric tons	6,646,000
France	tons..	1,565,000

In 1918 they were:

United Kingdom (including 306,851 tons of steel castings)	tons..	9,591,000
United States	do...	45,073,000
Germany	metric tons	14,874,000
France	do...	1,912,000

The highest figures were reached

In 1917, United Kingdom, with an output (including steel castings), of	tons..	9,804,000
In 1918, United States, with	do...	45,073,000
In 1913, Germany, with	metric tons	18,959,000
In 1913, France with	do...	4,687,000

Leaving out other minor countries, the pig-iron output of Belgium, which was an annual average of 2,183,000 metric tons for the four years 1910 to 1913, fell to 1,454,500 metric tons in 1914, being as low as 68,150 metric tons in 1915, and 127,825 metric tons in 1916.

The steel production of Belgium, which was an annual average of 2,280,000 metric tons for the four years 1910 to 1913, was 1,360,000 metric tons in 1914, 94,500 metric tons in 1915, and 95,830 metric tons in 1916.

Italy had for the five years 1900 to 1904 an average annual output of pig-iron of 44,680 metric tons, and an average annual output of steel of 163,000 metric tons; her corresponding figures for 1917 were, pig-iron 475,400 metric tons and steel 1,304,000 metric tons.

The detail figures of pig-iron output for the United Kingdom for the year 1918 were as follows:

	Tons
Hematite	3,547,804
Basic	3,202,098
Foundry pig-iron	1,272,288
Forge pig-iron	777,704
Spiegel, ferro-manganese, ferro-silicon, etc..	246,943
Direct iron castings	18,780

In the same year there were produced in the United Kingdom:

	Tons
Bessemer steel ingots, acid	788,355
Basic	567,650
Open-hearth steel ingots, acid	3,901,136
Basic	3,924,415
Electric steel ingots	103,201
Electric steel castings	44,901
Bessemer and open-hearth steel castings...	261,950

UNITED STATES ORE PRODUCTION. The greater part of the iron ore produced in the United States, about 86 per cent, comes from the Lake Superior region, where as in other fields of the industry conditions were unsatisfactory and production fell off materially. A few small strikes, a scarcity of labor, which also was in the main inefficient, and increasing costs were features of the year to which bad weather conditions on

the lakes and in the northwest generally might be added. As a result the total water shipments from the Lake Superior region totalled 47,177,395 tons, or a decrease of 14,850,000 tons from 1918 and 17,200,000 from 1917. A corresponding decline in the rail shipments which normally average somewhat less than 2,000,000 tons also was reported. Of the total output of the Lake Superior region the Mesaba range supplied 64.70 per cent in 1919 of which 84 per cent was for the U. S. Steel Corporation.

The total shipments from 1915 to 1919 are given in the accompanying summary which also shows the proportion taken by the U. S. Steel Corporation.

	Total shipment	Total U. S. Steel Corporation	Per cent U. S. Steel Corporation
1915	47,272,751	21,318,320	47.63
1916	66,658,466	30,255,616	47.52
1917	64,437,003	28,655,771	44.34
1918	62,036,082	25,801,503	41.66
1919 *	47,177,395	21,591,412	45.75

* Water only.

Naturally iron ore production during 1919 in the United States was hindered by the shutting down of blast furnaces during the steel and coal strikes, and the total output was estimated by the U. S. Geological Survey in its preliminary estimates at 60,466,000 gross tons, a decrease of 13 per cent compared with 1918.

Shipments from the mines also fell off, being 56,319,000 tons, or nearly 22 per cent less than 1918. Shipments were valued at \$203,274,000, the average selling price at the mines being \$3.60 per ton, compared with \$3.39 in 1918. Stocks of ore at mines at the end of 1919, mainly in Michigan and Minnesota, were 12,986,000, an apparent increase of about 53 per cent.

Imports of iron ore into the United States for the 11 months ending Nov. 30, 1919, were 423,507 gross tons, valued at \$2,192,619, or \$5.19 a ton. Imports for 1918 were 687,468 gross tons valued at \$3,468,304, or \$4.40 a ton. Exports for the 11 months ending Nov. 30, 1919, were 995,577 gross tons, valued at \$4,302,734, or \$4.32 a ton, compared with exports for the entire year, 1918, of 1,256,383 tons, valued at \$5,535,090, or \$4.41 a ton.

AMERICAN IRON AND STEEL PRODUCTION. In the United States the production of iron and steel in 1919 was considerably below the average of the war years, 1916, 1917 and 1918. Pig-iron production was estimated at about 30,900,000 tons and steel ingot production probably at 34,000,000 tons. Comparison with the three preceding years is given below:

	Pig iron Gross tons	Steel ingots Gross tons
1916	39,434,797	41,401,917
1917	38,621,216	43,619,200
1918	39,054,644	43,051,022
1919	30,900,000*	34,000,000*

* Estimated.

BLAST FURNACES. The additional blast furnace capacity completed in 1919 was indeed meagre. But two blast furnaces—one for the Jones and Laughlin Steel Co. at Pittsburgh and one for the Weirton Steel Co. of Weirton, W. Va.—were built the smallest number in many years and to be compared with 8 in 1918, 14 in

1917, and 4 in 1916. The two furnaces referred to represented a capacity of 350,000 gross tons of pig-iron. At the end of the year four blast furnaces were under construction to be blown in early in 1920 and had an estimated capacity of 700,000 gross tons of pig-iron per year.

During the year there was an unusual fluctuation in the number of blast furnaces active. There was a steady decline from January due to the insufficient demand, forcibly expressed by a blowing out in the month of April of 54 furnaces. As will appear in the following tabulation from the *Iron Age* there was a gain of 51 in October and the end of the year saw 262 in blast.

NUMBER OF FURNACES IN BLAST, 1919

January 1	350	August 1	239
February 1	323	September 1	265
March 1	306	October 1	162
April 1	266	November 1	213
May 1	212	December 1	249
June 1	195	December 31	262
July 1	200		

OPEN HEARTH FURNACES. In 1919 only nine new open hearth furnaces were completed with a capacity of 625,000 tons, an insignificant number and amount when compared with 46 in 1918 with 1,945,000 tons capacity, 97 in 1917 with 4,326,500 tons capacity, and 103 in 1916 with 4,205,000 tons capacity. Of the nine new furnaces eight were for independent companies and their increased annual capacity 350,000 gross tons, included the conversion of two 30-ton furnaces to 80-ton capacity by the Canton Sheet Steel Co., Canton, Ohio, one 60-ton changed to a 120-ton furnace by the Central Iron and Steel Co., Harrisburg, Pa., and a new 700-ton mixer. The new open-hearth capacity of the U. S. Steel Corporation amounting to 275,000 gross tons included that due to a new converter at the duplex open-hearth plant at the South Works of the Illinois Steel Co., and a third 100-ton furnace at its duplex plant at Gary, Ind.

At the end of 1919 there were 22 open-hearth furnaces with an annual capacity of 875,000 gross tons under construction. Most of these probably would be completed in 1920. This number compared with 16 projected for 1919, with 35 for 1918, with 72 for 1917 and 91 for 1916. The reason that the 1920 programme exceeded that for 1919 was that some of those proposed for the latter year were postponed until 1920. The estimated annual capacity, 875,000 gross tons, compared with 1,130,000 tons planned for 1919, with 1,645,000 tons for 1918 and 4,515,000 tons for 1917. In both 1918 and 1919, in the list of furnaces under construction and projected, the Bethlehem Steel Corporation was credited with a duplexing plant at its Maryland Works at Sparrows Point, consisting of four 200-ton tilting open-hearth furnaces and four 25-ton Bessemer converters. For 1920 only one of the 200-ton tilting furnaces was reported as authorized for building in 1920.

MARKET CONDITIONS. The year 1919 opened with a free market as the War Industries Board had ceased to act on Dec. 31, 1918, and there was to be no further government control. There had been a reduction of prices in December, 1918, but there was a general hesitation on the part of purchasers in the early months of the year and naturally large cancellations of war orders. Threatened unemployment was an important con-

sideration at the national capital and both the Department of Commerce and the Department of Labor favored some move towards price stabilizing. A committee of steel manufacturers met a newly formed Industrial Board of the Department of Commerce, and on March 20th, reduced prices were announced on iron and steel products with the aim of stimulating purchases which had been temporarily suspended. Certain buyers came into the market as a result of this movement, though it was announced that the prices would not be binding on any one, but the Railway Administration refused to pay the price fixed for rails, \$45 for Bessemer and \$47 for open-hearth, and later the Attorney-General denounced the entire scheme as illegal in view of the Sherman Act. By May 9th, when the Industrial Board resigned, all attempts at price fixing vanished and there was a natural market with increased demands for iron and steel. Prices held strong though the U. S. Steel Corporation endeavored to maintain its announced and often lower rates than certain of the independents who were in a position to deliver. The reason assigned was that an increase of prices would produce a demand for increased wages and thus disturb conditions.

The strike on Sept. 22d altered all conditions in the iron and steel industry, and while it was fought to a finish by the manufacturers (see STRIKES AND LOCKOUTS), directly and indirectly it was most expensive for them and for the country at large which was in need of iron and steel products. Naturally there was slackened production, the output in pig-iron in October being 600,000 tons less than in September, which in turn was about 200,000 tons below August. However, as the strike in the steel mills gradually faded the coal strike came on, and along with the failure of adequate production there was considerable demand for iron and steel products. Perhaps as notable as any feature of the steel business in 1919 was the demand from automobile manufacturers for materials and especially sheets of which there was a shortage during the latter part of the year.

BRITISH IRON AND STEEL INDUSTRY. In the United Kingdom during 1919 the demand for iron and steel products was continuously in excess of the supply and as a result high prices and large profits ruled. There was a marked decline in the exports of pig-iron as well as of finished iron and steel. In fact certain pessimists who traced the decline in pig-iron exports from the tons from 1,246,884 tons in 1913 to 926,596 tons in 1914 to 250,000 tons in 1919, had serious forebodings for the immediate future of the industry. In 1914 there were exported 500,614 tons of railway rails, 137,305 tons of wrought iron such as rods, bars, etc., and 81,458 tons of cast iron, while in 1914 these figures for 10 months were 97,752 tons, 29,304 tons, and 17,237 tons respectively. Tin plates in 1914 were 494,921 tons as compared with 236,513 tons for 10 months of 1919 and galvanized sheets 762,244 tons in 1914, as compared with 131,340 tons in 10 months of 1919.

The reasons for the decreased production were not difficult to explain, and in fact reflected in large measure British industrial conditions generally. The number of furnaces in blast fell from 71 in January to 63 in December with 54 idle and both ore and coke were lacking in adequate amounts. A holiday in July and later the

railway strike preventing supplies, especially of coke brought down the Cleveland production in 1919 to less than 2,750,000 tons where in 1913 it was 3,869,000. Lack of coal, lack of ore, lack of cars, all were serious factors, and the introduction of a seven-hour day at the Cleveland mines was a leading cause of reduced output.

The production capacity was present and an investigation made for the Board of Conciliation and Arbitration of the manufactured Iron and Steel Trade of the North of England showed that the country's productive capacity of finished steel was double that of 1914. However, notwithstanding increased and enlarged plant facilities owing to lack of railroad transport facilities, however, the output in 1919 was below that of 1914. The inability to get material carried away was such that 80,000 tons of finished steel were lying in the works on the northeast coast of England at the end of the year. If the railroads could have taken away the finished material the production would have been enormously increased.

On Apr. 30, 1919 the state subsidy on pig-iron and government control of prices terminated, and iron that was sold at 95s. per ton for domestic consumption and 145s. for export straightway was taken at 140s. for standard No. 3, and with the eager demand went to 160s. While prices could have gone higher it was decided by the Cleveland iron masters to hold them at this figure for domestic consumption with an added 5s. for foreign trade. Reference has been made to diminished exports of pig-iron which were reduced greatly in the case of France and Italy and increased in the case of Belgium. In the Cleveland district the wages both in the mines and at the furnaces were regulated by a sliding scale with advances depending upon the prices at which pig-iron was selling in the market. There was no labor difficulty during the year in the industry.

IRON AND STEEL INDUSTRY IN GERMANY. In 1919 there was a heavy demand for iron and steel products in Germany and a corresponding scarcity not only of coal and iron, but also of finished materials. These advances reached extraordinary figures by December, ranging for all products from crude ores to finished articles. The depreciation of the German currency led to certain sales to foreign countries at rates higher than those prevailing at home and towards the end of the year many foreign contracts could have been placed in Germany had raw materials been available.

During the latter part of the year coal was increasingly scarce while not only did the Germans miss the ores from the territory which they had lost in the war, but the failure of Swedish ore imports on account of the blockade and the reduced shipments of ores from France were also features. The shortage of coal too had its effect in reducing the production of the Siegerland mines.

It was believed that one result of the war and the peace treaty would be a radical transformation in the German iron and steel industry which would be forced to work up its products into more highly finished goods and not attempt to compete with France in semi-manufactured goods or heavy bars, especially as the French works in Lorraine and Luxemburg equipped largely with excellent German furnaces and machinery were in a position to handle most ad-

vantageously and economically the cheap ores available. The German cutlery and hardware trade was rapidly establishing itself in foreign markets and in some cases as in that of the Solingen manufacturers payment was required in the currency of the purchaser at a substantial advance over the pre-war prices, this practice being followed in western Europe, Italy and Scandinavia.

The readjustment to peace conditions of great plants that during the war worked on ordnance and munitions was proceeding apace. The Mannesman Tube Works of Duesseldorf which was credited with almost a monopoly of the German pipe production, declared a dividend of 5 per cent as compared with 15 per cent, while the Krupp works having passed its dividend as in 1918, was engaged in preparations for the extensive manufacture of locomotives and railway cars.

The following table from the London correspondent of the *Iron Age* (New York), shows certain of the losses to Germany under the peace treaty, the output being of course in tons:

	In No. of Works	Silesia Annual Output	In Alsace-Lorraine No. of Works	Annual Output	In Saar District No. of Works	Annual Output
Iron mines	10	137,489	54	21,136,265	..	.....
Lead, silver, and zinc mines	12	1,341,713	..	.....	..	.....
Sulphur	8	388	..	.....	..	.....
Pig iron works	8	994,601	13	3,863,524	5	1,371,389
Iron foundries	42	99,742	40	94,808	16	98,242
Steel works	11	1,396,287	7	2,289,250	7	2,079,856
Rolling mills	13	1,415,436	8	1,554,001	8	1,056,702
Lead, silver, and copper refineries, etc.	3	93,522	..	.....	..	.....
Spelter refineries, etc.	18	176,446	..	.....	..	.....

BELGIAN CONDITIONS. Considerable promise for the Belgian iron and steel industry was held forth in 1919 inasmuch as the population was resolutely engaged in reestablishing the manufacturing plants on a producing basis, notwithstanding the systematic and complete destruction accomplished by the Germans in many manufacturing centres. However it was expected that another year would see the Belgian iron and steel industry in a position to be a factor in the commerce and reconstruction of the country.

FRENCH CONDITIONS. In France, notwithstanding the changed conditions and the newly acquired Alsace-Lorraine works, conditions in the iron and steel industry were in large measure chaotic, due both to business and political influences and also to the fuel shortage and the general railway situation which was far from satisfactory.

ELECTRIC FURNACES. From Jan. 1, 1919 to December 31st of that year, the number of electric furnaces in the United States increased from 287 to 323, while in Canada there was a net loss of three, there being 40 electric furnaces in all at the end of 1919. When it is recalled that on July 1, 1913 there were but 19 electric furnaces in the United States and but three in Canada, the development can be appreciated. The most popular type of electric furnace in 1919 was the Heroult, of which there were 152 in the United States and 18 in Canada at the end of the year or a gain of seven during the 12 months. There was a considerable expansion in the construction and use of this type of furnace in 1917, due to war conditions, but in 1918 and 1919 the development was more normal and the utility was recognized at the Naval Ordnance Factory at Charleston, W. Va., two 30-ton Her-

oult furnaces were being installed. The relative use of the various types of electric furnaces at the end of 1919, those in the United States and Canada being taken together, was as follows:

Snyder	49	Induction	3
Rennerfelt	18	Webb	2
Greaves-Etchells	18	Stassano	1
Grönwall-Dixon	13	Greene	11
Ludlum	12	Vom Baur	4
Girod	5	Detroit	1
Booth	11	Special	24
Moore	20		

There were over 815 electric furnaces in use in the different steel plants of the world at the end of 1919, Great Britain coming next after the United States in point of numbers, followed by Germany, France, Sweden, Italy, Austria, Norway, and Japan.

PLATE MILLS. The Lukens Steel Company, Coatesville, Pa., which furnishes the greater part of the railroad locomotive boiler steel used in the United States, early in 1919 put into use the largest plate mill in the United States, which

also exceeds in dimensions any in the other countries of the world. The first boiler plate in America was made at the plant of the Lukens Steel Company in 1820, and in 1890 a 120-inch plate mill was in operation, which was later rebuilt to 134 inches. In 1903 a 140-inch unit was put in commission, and the last No. 5 mill is 204 inches in measurement. The Withowitz Works in Austria has a 178-inch mill, and the largest mill in Great Britain is 168 inches. In the No. 5 Lukens mill plates up to 192 inches in width and circular pieces a few inches wider may be rolled. Attempts have been made to build in a three-high mill, but it was not possible to secure chilled rolls of the size and weight demanded, which would be 50 inches in diameter. Accordingly a two-high mill such as more usual in Great Britain was used, where the rolls are of smaller diameter, being 34 inches in diameter, with a working face of 204 inches with 27-inch necks. They weigh about 30 tons each. The backing rolls, 50 inches in diameter, are made of cast steel with 36-inch necks, and weigh about 60 tons each. This mill will handle ingots up to 60,000 pounds in weight, and at full capacity will roll from 4000 to 5000 tons of plate. With this and other improvements in contemplation, the Lukens Steel Company would have an estimated annual capacity of about 500,000 tons of finished plate. See METALLURGY.

IRRIGATION. See RECLAMATION.

IRVING, HENRY BRODRIBB. British actor-manager, eldest son of the late Sir Henry Irving, died in London, October 17. He was born in London, Aug. 5, 1870, educated at Marlborough College and New College, Oxford. He appeared on the stage in 1891. He was called to the bar in 1894, but did not practice and continued his career as an actor. He was man-

ager of the Shaftesbury (in 1908-09) and of the Queen's Theatre during the two following seasons. He made tours in Australia and South Africa, and produced several of his father's well-known plays. Among his writings may be mentioned a *Life of Lord Jeffreys*, (1898); *French Criminals of the 19th Century*, (1901); and the *Trial of Mrs. Maybrick*, (1913).

ISTRIA. Before the downfall of the Austro-Hungarian empire, a crown land of the former kingdom of Austria and consisting of a peninsula extending from Trieste and Carniola to the Adriatic Sea. Area 1914 square miles; population according to the census of Dec. 31, 1910, 403,566, of whom 386,463 were reported as Austrian subjects. Of these 43.52 per cent spoke Croatian; 38.15 per cent Italian and 3.3 per cent German. Capital, Capodistria, with a population of about 9000 in 1910. See article WAR OF THE NATIONS.

ISTRIA. See ARCHÆOLOGY.

ISVOLSKY, M. Russian diplomat, died in Paris during the first week of September. He was Russian ambassador at Rome and afterwards at Copenhagen, and in 1906 was chosen Russian Minister of Foreign Affairs. This was the time of difficulties with Great Britain over Persia and it was largely through his efforts that the accord in regard to Persia was reached between the two governments. He also succeeded in effecting a reconciliation with Japan, but his policy in regard to Austria-Hungary has been characterized as a failure. He held the famous interview with von Aerenthal, the Austro-Hungarian Foreign Minister resulting in the Balkan agreement, which was not maintained by Austria-Hungary. He went to France as ambassador in 1910, and remained there until June, 1917, when he resigned two months after the abdication of the Czar. The revolution was the end of his public career, despite the fact that he was believed to desire an understanding with the revolutionists. After his retirement he wrote memoirs, portions of which were published in the European reviews. In his writings and intercourse he gave it to be understood that he shared the liberal views of the times, and did not sympathize with the imperialistic spirit of his successor, M. Sazonov. He declared that he had favored the internationalization of Constantinople, and that the Emperor also wished it, and that the Russian claim to Constantinople and the Straits in 1915 had come as a complete surprise to him. He lived quietly while in retirement and he died at the sanitarium of the Holy Savior, where M. Clemenceau had previously been cared for during his illness.

ITALIAN SOMALILAND. An Italian colony and protectorate in eastern Africa on the coast, extending from the British Somaliland protectorate southward to the Juba river. Area, 139,430 square miles; population, about 450,000. In 1917 the imports were valued at 3,877,609 lire and the exports at 6,064,782 lire. The budget for 1918-1919 was as follows: Revenue, 6,356,000 lire; expenditures, 6,005,998 lire. Governor in 1919, G. Cerrina Feroni.

ITALY. The constitutional monarchy in southern Europe comprising Italy proper, the islands of Sardinia, Sicily, Elba, and between 60 and 70 smaller islands, together with territory on the eastern coast of the Adriatic—of an area undetermined at the close of 1919, being the

subject of disputed claims (see below under *History*, and also the article WAR OF THE NATIONS). Area, 110,632 square miles (exclusive of accessions resulting from the war); population, estimated, Jan. 1, 1915, 36,120,118. For details, see preceding YEAR BOOKS. Emigrants, 1917: 46,493 of whom 33,480 went to European or Mediterranean countries, and 13,013 overseas (11,459 to the United States). In 1917, 16,885 Italians returned to Italy, (8763 from the United States). Capital, Rome, with a population, Jan. 1, 1915, estimated at 590,960; largest city, Naples, (697,917); other large cities, Milan, (663,059); Turin, (451,994); and Palermo, (345,891).

RAILWAYS. The Council of Ministers during the year approved a scheme, proposed by the Transport Minister, De Vito, for the electrification of the Italian State railways. The plan proposed provided for the exploitation of the national water power resources and their utilization for railway purposes. The first programme, which limited the improvement to 2000 kilometers was later extended to 6000 kilometers. This included the two principal trunk lines across the Apennines, viz., the two "Direttissime," Genoa-Tortone and Bologna-Florence, eight mountain passes and the principal arteries of the railway system of the peninsula from Trient to Reggio, Calabria, or from Turin to Trieste. The bill provided for an expenditure of 800,000,000 lire spread over eight years. Other expenditures were provided for the acquisition of material and for the government's subsidies to the new plants, the financial side of the matter being more serious than the engineering. There was available in Italy adequate water power as the Trentino alone could furnish at least 1,000,000 horse-power, while the mountain basins of numerous rivers and torrents along the Alps and the Apennines could be dammed and made into artificial lakes with a comparatively small amount of dam construction.

It was realized that before new railways in Italy could be constructed or converted to electricity it would be possible still to increase the use of motor vehicles for passengers and freight as feeders to the present lines. The use of motor vehicles as auxiliary to the railroads had been developed during the last 10 years to a higher degree in Italy than in any other country in the world, owing to the fact that Italy is a mountainous country in which railroad lines can only be built at considerable cost and labor. The total length of railroad lines in Italy in 1919 was 8700 miles, while the length of routes over which motor services were run with a fixed time table is 8070 miles. There were 400 of these lines over which regular public services were run either as feeders to the railroad or in order to open up country which had been inaccessible to the railroad.

During 1919 Italy was considering the resumption of through traffic with Germany and an agreement aiming to reestablish traffic through Switzerland was made. Passenger and freight traffic were thus reopened, though subject to certain restrictions. This is of great economic significance for Italy because of the abnormal exchange rate, which was greatly in favor of Italy and enabled advantageous purchases of goods to be made.

The serious economic condition of Italy naturally affected the railways and many trains

were not running for lack of fuel. From Belgium 2000 tons of coal was being received daily and prevented much distress.

The Italian State Railways on Jan. 1, 1920, was to take over the chief normal gauge railways on the island of Sardinia, which have hitherto been worked by a private company. The service was to be thoroughly reorganized, rolling stock overhauled, and various other improvements effected.

Italy was to have an important connection with Eastern Europe by the completion of a new railroad to run from Valona on the Adriatic to Monastir. This not only would benefit the undeveloped country of Albania, but would give Italy through communications across the Balkans with Constantinople. Two ferries which were to carry the train over the Otranto Passage and thus the Italian system would be linked up with the new railway.

It was also proposed to connect up Durazzo, the most important port of Albania, by a branch which will run in an almost straight line through the plain of Kavaja along the old Roman road, via Egnatia. After diverging from this road and taking the Musekeja road, it would join the Trans-Balkan line not far from Pekini, at a suitable spot between Fieri and Berat.

EDUCATION. No later figures for elementary education were available than those given in the preceding YEAR BOOK. In 1916 the public elementary schools numbered 120,196 with 75,993 teachers and 3,792,024 pupils. The latest figures for the universities were for 1916-17, when the total number of students was placed at 29,075. In 1917-18 the 35 schools of agriculture had 1198 students. There are besides, industrial schools, schools of design and numerous professional and technical schools. In 1919, as a part of its reconstruction work the government provided in 1919 for a national institute for the instruction of illiterate adults. Its immediate purpose was to give illiterate demobilized soldiers the minimum instruction required for the increase of their productiveness and their usefulness as citizens. It was authorized to make use of the teaching staff of the elementary public schools. Its administration was in the hands of a committee of 10 members of which the president was to be appointed by the prime minister.

PRODUCTION AND INDUSTRY. Of the total acreage, namely, 70,811,000, about 51,309,310 are under crops, and 11,272,339 are forests. The following table shows the acreage and production in hundredweights of the principal crops for 1917 and 1918:

	Acres		Cwts.	
	1917	1918	1917	1918
Wheat	10,680,250	10,914,250	76,204,000	99,776,000
Barley	475,000	488,500	3,282,000	4,218,000
Oats	1,119,750	1,228,525	9,838,000	13,166,000
Rye	282,500	273,000	2,266,000	2,658,000
Maize	3,898,500	3,598,000	42,932,000	38,798,000
Rice	350,000	346,000	10,244,000	10,470,000
Beans	1,099,500	1,077,000	7,046,000	8,362,000
Potatoes (tons)	740,500	747,250	26,248,000	28,198,000
Sugar beet-root (tons)	121,500	107,000	22,440,000	22,920,000
Vines (1000 gals.)	10,846,750	7,261,000	1,061,500	1,237,632
Olives (1000 gals.)	5,753,000	5,750,000	45,012	.....

In August it was reported that the yield for the year 1919 was larger than the average yield for the past 10 years, but was still insufficient for the yearly consumption. The average annual requirement was 1,500,000 quintals. The estimate for the following year was 1,300,000 quintals. The area which planted in sugar beets in 1919 was about 148,000 acres. This is considerably greater than the acreage in this crop for the past few years, as is indicated by the following figures: 1913, 152,710 acres; 1914, 100,571 acres; 1915, 122,810 acres; 1916, 123,157 acres; 1917, 120,092 acres. It was estimated for 1919 that the production of sugar would reach 286,520,000 pounds, which is an increase of 110,200,000 pounds over that for 1918. See article AGRICULTURE.

In 1917 the mineral output was valued at 303,038,718 lire and employed 56,705 persons. As a result of the experience gained by the Italian government since the signing of the armistice, in November, 1918, with reference to combating unemployment, new measures were approved by the Italian ministry making radical changes in the plan of organization and the provisions for the payment of unemployment subsidies established by the decrees of Nov. 17, 1918, and Jan. 5, 1919. In addition to modifying the administrative organization previously established, in such a way as to centralize and coordinate more effectively all the activities of the government with regard both to employment and to unemployment, provision was made for the establishment of a permanent system of unemployment insurance which is to be paid out of a fund to which not only the State but also the employers and the workers will contribute. In the past, the State bore the entire burden of the unemployment subsidies. Provision was also made for advancing money out of the fund for unemployment to municipalities, or consortia, for the immediate initiation of public works.

Statistics regarding the extent of unemployment in Italy were not available. However, with the rapid demobilization of the army, and the comparative inactivity in certain important industries, notably the iron and steel industries, on account of the shortage of raw materials, there was every reason to believe that the number of unemployed was very considerable. Italy has made great progress along the lines of social legislation, and the new compulsory insurance against unemployment would, it was hoped, do much to relieve the situation. (See STRIKES AND LOCKOUTS.)

FOREIGN TRADE. The following table shows the imports and exports in millions of lire in 1913, 1917, and 1918 (figures for the last-named year being provisional):

Date	Imports	Exports
1913	3,645.6	2,511.6
1917	13,991.2	8,308.5
1918	14,101.6	2,483.5

The amount reached by the imports in 1918, namely, more than 14,000,000,000 lire was without precedent in the economic history of Italy, and was even higher than the figures indicate, because they were not computed at current prices which were 30 per cent higher than they were in 1917. The main sources of these imports were first the United States, which had

held that rank for three years, with 6,226,000,000; second, Great Britain, with 2,189,000,000; third, Argentina, 1,493,000,000; fourth, British India, 1,164,000,000; fifth, France, 1,062,000,000. Of the Italian exports to foreign countries France received the largest amount, namely, 902,600,000; and then came Great Britain with 559,000,000; Switzerland, 283,000,000; United States, 127,000,000; Greece, 100,000,000; Argentina, 99,000,000; Egypt, 96,000,000. The chief exports from America in 1918 were food-stuffs and raw material, but there was also a considerable quantity of manufactured and partly manufactured goods. From Great Britain one-third of the imports were represented by coal. From France one-half of the imports were represented by coal and explosives.

FINANCIAL SITUATION. Budget estimates for the year ending June 30, 1919, were: Revenue, 5,099,929,886 lire; expenditures, 4,810,654,310 lire. There was great interest throughout the country in financial reforms proposed by Signor Nitti and the cabinet. It was necessary to procure for the Italian treasury about 20,000,000,000 lire. Many confusing rumors were abroad. There was talk of a very high income tax to bear especially upon fortunes made during the war. This would not, however, suffice, and it was necessary to tax fortunes that existed before the war. Hence a report was spread that there would be general tax upon capital, based on difference in per cent between the amounts made before the war and those gained rapidly during the war. Then a forced loan was proposed and a special committee was appointed to study the question of rate. The minimum rate proposed was one-half of one per cent, and the maximum two per cent, and the term was fixed at between 60 and 100 years. It was proposed that the limit beyond which the tax would apply should be fixed at about 50,000 francs. As to fortunes acquired or increased during the war, they would be submitted not only to a forced loan, but to a very high tax besides. In some journals it was urged that the difference should be determined between the fortunes gained by war munitions or in business relating to the war, and fortunes gained in industries and business that had no direct relation with the war, and there was prolonged discussion in regard to this. The loan, it was estimated, would yield between 15,000,000,000 and 20,000,000,000 and the income tax, a little more than 5,000,000,000, and that after deducting costs, there would remain 20,000,000,000 for the treasury. In spite of this large sum there would still remain heavy expenses to meet for which the pre-war taxes were inadequate. The ordinary budget would be considerably increased. Before the war it had been about 2,500,000,000, and it would now be about 6,000,000,000. The income tax prepared by the preceding finance minister, Signor Meda, would be adopted by the present minister with some amendments of detail. As to the general prospects from the economic point of view, the present Minister of Finance, Signor Tedesco, was on the whole optimistic. He said that the war had served to prove to Italians their potent strength and wealth. He predicted an immense exploitation of the soil in the future. He said great undertakings were certain to be started. The Italian means of transport would be transformed and over 6000 kilometers of railways would be electrified. Means

of applying liquid fuel on railroads and in industries were under consideration. In many of the mountainous regions, especially in Calabria, water works on a large scale would be established and immense reservoirs would furnish water regularly to the agricultural regions, and supply water power for the industries. The result was certain to be an increase in intensive culture.

GOVERNMENT. The ministry at the beginning of the year was as follows: President of the Council and Minister of the Interior, Signor Vittorio Emanuele Orlando; Vice-President of the Council, Giovanni Villa; Minister of Foreign Affairs, Baron Sidney Sonnino; Minister for the Colonies, Signor Gaspare Colosimo; Minister of Justice and of Ecclesiastical Affairs, Signor Luigi Facta; Minister of the Treasury, Signor Bonaldo Stringher; Minister of Finance, Signor F. Meda; Minister of War, General Enrico Caviglia; Minister of Marine, Admiral Alberto Del Bono; Minister of Food, Silvio Crespi; Minister of Public Assistance and Pensions, Signor Giuseppe Girardini; Minister of Public Instruction, Signor Agostino Berenini; Minister of Public Works, Signor Ivanoe Bononi; Minister of Agriculture, Signor Vincenzo Riccio; Minister of Industry and Commerce, Signor Augusto Ciuffelli; Minister of Posts and Telegraphs, Signor Luigi Fera; Minister of Railways and Merchant Marine, Signor Giuseppe De Nava. For later ministry, see below under *History*.

HISTORY

THE GOVERNMENT AND NATIONALISM. DOWN to the fall of the Orlando Ministry Italy was represented at the Peace Conference by Orlando, Baron Sonnino, General Di Robilant, Salvatore Barzilai, Marquis Salvago-Raggi and Signor Salandra. It had been evident before the end of 1918 that the nationalist spirit was gaining ground in Italy and threatening to commit the country to a line of policy condemned by liberals as imperialistic. Already (December 28th) the Socialist minister Bissolati had resigned in protest against the policy of Baron Sonnino and his followers, holding that such a policy was a discredit to Italy abroad and ran the risk of bringing her into war with the Jugo-Slavs. At this time he said that Italy should content herself with Fiume as a free port under Italian rule, and with Istria. He thought that Italy also would have to give up her claim to the Dodecanese in return for compensation, in order not to drive Greece into an alliance with the Jugo-Slavs. Part of the ministry agreed with him and the Socialists and Clericals in parliament supported him. The enthusiasm with which President Wilson was received disguised the actual condition of affairs for a short time. He was hailed as liberator only so long as he was supposed to be in sympathy with nationalist aims of Baron Sonnino and his supporters. As soon as his real view in respect to Fiume became known there was an end to his popularity. The resignation of Bissolati led eventually to a ministerial crisis. On January 12th Signor F. S. Nitti, minister of the treasury, offered to resign and a few days afterwards tendered his resignation along with other moderate members of the cabinet, apparently with the design of driving from office the foreign minister Sonnino and thus bringing in a government supported by

Socialists and Clericals which might institute a policy of concession toward Jugo-Slavia and repudiate the treaty of London. This did not happen however for both Orlando and Sonnino held their posts although some changes were made in the cabinet, including the creation of a new ministry for the reconstruction of invaded territory, to which Signor Fradeletto, former minister of public instruction was appointed. All the new members of the cabinet were supporters of Italy's claims to Fiume and to the Dalmatian coast. As noted in the WAR OF NATIONS (q.v.), President Wilson on April 23d in a public statement emphasized the importance of Fiume to the new states created out of the old Austro-Hungarian dominions and appealed to the generosity of the Italian people and their friendship for their new neighbors as against the extreme attitude of the Italian government. This caused a storm of indignation among all classes and led to an enthusiastic ovation of Orlando and Sonnino when they left for the time being the Peace Conference and returned to Rome; and the government received a vote of confidence of 382 to 40, the minority consisting of the irreconcilable Socialist group. Nevertheless the ministry fell soon afterwards. It was condemned for its failure to satisfy national hopes in respect to the Adriatic, and for its inability to remedy the serious economic conditions, especially the strikes and the high cost of living. On June 19th a vote was cast against it of 259 to 78, and the cabinet thereupon resigned. Signor Nitti, who was known as a former supporter of Giolitti succeeded as Prime Minister. He assumed the portfolio of minister of the interior and chose among others the following members: Foreign Affairs, Tittoni, (succeeded toward the end of the year by Scialoja); Colonies, Rossi; War Lieutenant-General Albricci; Finance, Tedesco; Marine, Rear-Admiral Sechi. There was much opposition to the new cabinet but when it came to a vote in the Chamber on July 14th it was supported by 257 to 111. The political situation had been complicated by the formation of the Catholic Popular Party. This resulted from the action of the Vatican in removing the rule against the participation of Catholics in politics. This new party did not thoroughly agree with the Orlando programme but favored a compromise in respect to the Adriatic. Its programme in general involved the following points: Strict reorganization of finance; guarantee of rights and liberty; a just solution of the land problem; proportional representation; reform of the senate in such a way as would make it represent the organic corporations of the country; administrative decentralization; support of the League of Nations; publicity of treaties; and compulsory arbitration.

SIGNOR NITTI'S PROGRAMME. At the beginning of September the Prime Minister announced his programme which comprised the following main points: He declared that the country's need was for peace, discipline, and work, and he appealed for harmony to those ends. In regard to relations with France he declared in an interview with a French newspaper that the interests of the two countries were in perfect accord, and that this condition ought to be maintained. He referred to the employment of Italian labor in France, and said that he had warned Italian representatives in

France that they must not interfere with or lower the standard of the local working-men. He said he desired to secure for the working class a share in the government and that that was the principal note of his policy. The difficulties that presented themselves at present, he said, would probably be overcome within the next two or three years, for Italy was of all countries the one that had come out of the war under the best conditions and with the strongest body of men fit for labor. The debt had risen to only 80,000,000,000, of which 15,000,000,000 had already existed. His financial policy included first, a general income tax which would tend to increase and whose returns were placed at from 20 to 25,000,000,000. This income tax would provide for the expenses caused by the new debt. As to his foreign policy, he said it consisted simply in an attitude of frankness and simplicity and that the time for dissimulation was past. The external policy of the country must be democratic. In regard to the realization of Italy's national aims, he relied upon the complete support of France and urged that a solid bloc should be formed between the two countries.

THE ELECTIONS. The elections to the Chamber of Deputies were held on November 16th. The figures as finally presented on December 24th were as follows: Socialists, 160; Catholics, 103; Liberal Democrats, 93; Radicals, 58; Socialist Reformists, 14; Democrats, 23; Republicans, 4; Combatants, 24; Giolittians, 5; Radical Christian Democrats, 1; Nationalists, 2; Independents, 6; Radical Socialists, 1; Independent Socialists, 1. Among the chief features of the elections may be mentioned the increase of the Socialist representation and the appearance for the first time in the Chamber of the new Popular or Catholic party. This participation of Catholics now admitted by the Holy See marked a departure from the policy followed consistently by the Vatican since Rome was occupied by the Italian government, Sept. 20, 1870, during which time the Catholics had been required to abstain from voting and to refuse election to office. Another feature was the large number of abstentions during the election from among the moderate parties. In the final result, although the constitutional royalists in the various groups continued to hold the majority, the opposition had increased in power. Alliance between the Catholics and the Socialists however, seemed hardly possible.

On the eve of the opening of parliament the directors of the Socialist party held a meeting at which a resolution was passed declaring that the Socialist victory at the elections was an act of complete solidarity with the Soviet republic of Russia, clearly expressing to the Italian government an order to recognize that republic immediately. Before parliament met the Socialist deputies at a meeting adopted the proposal by a vote of 105 to 23 that on attending the first meeting of the new Chamber, they should refuse homage to the king, and leave the Chamber before delivery of the speech from the throne. This was the general spirit of the entire Socialist representation, for those who cast the negative votes did not do so on principle, but merely because they favored the alternative proposal that they should not attend the session at all. The new session promised to be a stormy one as many of the Socialists

had promised the electors to take extreme action against parliament.

PARLIAMENTARY SITUATION. The elections gave the Socialists nearly one-third of the seats in the new Chamber which was opened by the king in December and they had never before appeared in parliament in any such strength. They determined from the first to show their power but they were not united in their policy. Two divisions or tendencies soon showed themselves. One element represented by Signor Turati tended toward compromise holding that it was to the interest of the Socialists to support the Nitti ministry. Signor Turati advised his associates to take no part in parliamentary proceedings and not to attend the opening session over which the king presided. On the other side were the extremists with Bolshevik tendencies. This division corresponded to the situation in the country at large where there was a sharp line between those Socialists whose attitude toward the Italian parliament was like that of the Bolsheviks toward their Constituent Assembly and on the other hand the more moderate socialists who wished to proceed by gradual and orderly means. In the discussion over the proper attitude for the party to take Signor Turati was defeated, receiving only 23 votes out of about 130 in the conference. It was decided however by 105 votes that the Socialist deputies should begin by taking their seats but withdraw on the speech from the throne. Accordingly when the king appeared the socialists arose and left the Chamber singing revolutionary hymns. In respect to internal policy the question had been raised whether Socialists ought to take an oath of allegiance. The new deputies under the influence of the campaign oratory and their recent contact with the theories and dogmas of socialism felt hesitation about taking the oath, but if they did not do so they would lose their seats. They decided to take the oath and then for the sake of saving their principles to demand its abolition in the future. In respect to foreign policy the Socialists did not avail themselves of the opportunity which now presented itself of uniting with the peoples of the Allied countries or even with the Socialist groups in some of the countries in attacking the danger of a return to militarism in Germany. On the other hand they preferred to attack France for retaining the German prisoners. By the non-Socialist elements the success of the Socialists was explained as not the result of any positive demand on the part of the people but of lack of interest on the part of large bodies of citizens, and their disappointment with the government. The old Chamber had been dissolved simply because the government believed it would vote against it and there was nothing in particular to draw the people to the government's support. The Socialists had profited by this general lack of interest. A vote of confidence brought the majority of only 26, the vote standing 242 for and 216 against. The Chamber adjourned for the Christmas holidays, to re-convene on January 28th, and just before the adjournment the ministry received a strong majority vote in favor of its proposed measure to reform the constitution in order to give parliament the sole power to declare war; and the Chamber sustained the government also when it announced that it had sent a dispatch severely criticizing Admiral Millo who had supported

D'Annunzio at Fiume. At the close of the year it did not appear that the Nitti government would resign on account of its small majority but that it intended to follow the policy of holding the balance between the two opposite extremes of Bolsheviks against whom the government would rely on the parties who stood for stability in public affairs including the new Catholic party and of reactionaries on the opposite side who showed an imperialistic tendency illustrated in the whole adventure of D'Annunzio against whom it would appeal to the popular parties and even to the Socialists and Catholics.

ADRIATIC POLICY. The Prime Minister Nitti was advocating a policy at the close of the year that tended toward moderation. He announced on December 29th in the course of a debate that he intended to break with the old diplomacy and to go to Paris for the purpose of informing the Allies exactly what Italy required. He referred to the policy of claiming everything in the hope of getting a part and said that the Italian method had been to demand everything on the Adriatic though expecting to get much less. He declared that the statement that the Fiume demand had been omitted from the agreement of London on account of Russian opposition was absolutely false. At the same time he gave assurances that no compromise had been accepted in regard to the Adriatic. A memorandum had been handed to the Italian Foreign Minister Scialoja by Mr. Lloyd George and M. Clemenceau and Mr. Davis, the American Ambassador, which according to the newspapers was of much importance, but it simply contained explanations of the American Secretary of State's remarks in regard to the Tittoni proposals. It went into both sides of the question but inclined toward the American view. At the same time it was understood that no pressure would be brought to bear on Italy to enforce this view. The Italian Foreign Minister declared that M. Clemenceau and Mr. Lloyd George had told him that after France, England and Italy agreed they believed they could induce President Wilson to accept the agreement. The reproach against Italy according to the Foreign Secretary was that she asked for Dalmatia and also for Fiume although Fiume had been granted to Croatia under the terms of the agreement of London. As to this he said that Italy had a treaty with France, and Great Britain which unfortunately was not recognized by the United States granting Dalmatia to her. Italy asked for the fulfillment of that but had not asked for Fiume. It was Fiume which had asked to be annexed to Italy. Italy could not avoid supporting the claims of Fiume in the circumstances according to the principles of self-determination. Italy was ready to enter into a direct agreement with the Jugo-Slavs, provided their government was free and not backed up by some other power. Italian aims were to preserve the Italian character of Fiume and to insure the safety of the Adriatic. The object was twofold: Protection of Italian nationality in Dalmatia and in Fiume and military defense of the Adriatic. The American Secretary of State proposed neutralization of the Dalmatian islands and of the sea as far as Ragusa. That would leave a part of the Italian coast exposed to attack as it had been in the last war and this was intolerable. In Asia Minor and on the Eastern Mediterranean

the Italians demanded influences proportionate to her economic and commercial interests. The Prime Minister in the course of his speech denied the statement that the relations between Italy and her Allies were no longer cordial. He said that the opinions expressed by M. Clemenceau had caused anxiety in Italy and he regretted that the French Premier had fallen into certain inaccuracies. Italy had not pledged herself to give Fiume to Croatia. Fiume to be sure was not included in the compact of London but if the compact of London were accepted Dalmatia would immediately be given to Italy. The compact of London had said that Italy would not fight alone against Austria but Italy had fought alone against Austria. As to the Jugo-Slavs they should understand that Italy had no desire for domination but only wished to open her markets to neighboring peoples. Above all Italy wished to avoid wars in the future. But so long as some of the Allied Powers made the Jugo-Slav minority believe that it would be supported, the demands of the Jugo-Slavs would continue to be excessive. The question of Fiume, Dalmatia, and Albania were allied to the internal situation of Italy and to credit abroad. After September Italy had been unable to obtain loans in Allied or neutral countries on account of fear of war or of bad conditions in Italy. Stability in affairs was absolutely necessary and the government would do everything in its power to this end if it were supported by parliament. In this connection the Minister of Finance expressed the hope that within six months the international conditions would be such as would permit Italy to get once more upon a real peace footing. As to the high rate of exchange the American government had abandoned the Allied plan for standardizing exchange and in this had been followed by the other governments. He believed that the United States would suffer serious losses in commerce if it did not open credits to counteract the high exchange. Negotiations with the United States for this purpose were he said now going on. See WAR OF THE NATIONS.

See NAVAL PROGRESS; LABOR LEGISLATION; OLD AGE PENSIONS; SOCIAL INSURANCE; DAIRYING; ZINC; WOMAN SUFFRAGE; YOUNG WOMEN'S CHRISTIAN ASSOCIATION.

IVORY COAST. A constituent colony of the French government-general of West Africa and situated between Liberia and the British colony of the Gold Coast. Area, about 125,000 square miles; population 1,559,251 of whom 716 are Europeans. Capital, Bingerville, with about 79 European inhabitants. The chief products are corn, beans, pineapples and other fruit, coffee, coconuts, rubber, mahogany, and gold. The chief exports are palm kernels, palm oil and rubber. Exports in 1918, according to a British authority were £507,936; imports, £809,401. There is a railway running between Abidjan and Bouaké (197 miles).

I. W. W. See INDUSTRIAL WORKERS OF THE WORLD.

JACOBI, ABRAHAM. Celebrated American physician regarded as the founder of American pediatrics, died at Bolton Landing, N. Y., on July 10th. He was born of Jewish parents at Westphalia on May 6, 1830; studied at the Gymnasium of Minden and the University of Greifswald where he pursued the subject of oriental languages but later devoted himself to medi-

cine. He studied afterwards at Göttingen and at Bonn where he graduated in 1851. He was an active spirit in the revolution of 1848 and was in prison for a year and a half in a German fortress. He escaped in 1853 and afterwards settled in New York City where he acquired a small practice. His reputation soon extended however as a result of his lectures and discoveries, and in 1860 he was called to the first special chair for diseases of children in the New York Medical College. From that time on his career was distinguished and has been recorded in all the medical journals. A brief account of him may be found in *Science*, Aug. 1, 1919.

JACOBS, CHARLES M. Civil engineer, died in London, England, September 7. He was the chief engineer of the Hudson Companies in New York and he was in charge of the North Tunnel. He was born at Hull, England, June 8, 1850. After practicing in England he came to the United States and became in succession consulting engineer on several railways for which he designed important tunnel plans. His great work was the designing of tunnels under Manhattan Island and vicinity, a project which required the outlay of \$50,000,000. He was also consulting engineer for the construction of a tunnel under the river Seine, at Paris.

JAMAICA. A crown colony of Great Britain comprising the island of Jamaica, which is the largest of the British West Indies and the following dependencies: Turks and Caicos Islands, Cayman Islands, Morant Cays, and Pedro Cays. Area of Jamaica, 4207 square miles; of dependencies 224 square miles. The population was estimated Dec. 31, 1917, at 893,884. Capital, Kingston, with a population of 57,397. Acreage in crops returned in 1917-1918, 1,021,975; tilled lands, 285,757; pasture, 736,218; sugar cane, 37,951; bananas, 67,987; provisions, 77,092; guinea grass, 145,249. In 1919 a considerable part of the land which had been producing bananas was planted in sugar cane on account of the high price of that product and new sugar mills were constructed. Imports (1917-1918), £3,297,665; exports, £2,478,917; revenue (1918-19), £1,157,304; expenditures, £1,228,808. The railway in operation in 1918 had a mileage of 197. Governor in 1919, Sir Leslie Probyn.

JAPAN. An empire in the Far East, capital, Tokyo.

AREA AND POPULATION. The empire exclusive of claims pending as the result of the war consists of Japan proper (the main island), Korea (Chosen), Formosa (Taiwan), Karafuto, Kwantung, Pescadores, and many other groups of islands, the total number composing the empire being placed at nearly 4000. The total area is given at 260,738 square miles. The population of Japan proper was placed on Dec. 31, 1918, at 57,784,935, exclusive of Korea, Formosa, and the army. The corresponding figures for the previous year were 56,860,735, and for 1913, 53,362,682. The population of Korea in 1917 was 16,998,191; of Formosa, 3,650,047; Karafuto, 68,207. The total population of Japan, 1917, was 77,266,793. Japan proper consists of four large and many smaller islands with an area of 148,756 square miles, the chief islands being Honshiu, (known also as Hondo, and Mainland), 86,953 square miles; Hokkaido, (known also as Yezo), 30,340 square miles; Kiushiu, 13,870; Shikoku, 6907. For the dis-

tribution of population by divisions, see the 1917 YEAR BOOK. The number of Japanese who had emigrated down to June 30, 1917, was reported at 450,773, distributed as follows: United States, 151,606 men and 7652 women; Australasia, 21,441 men and 8067 women; Brazil, 3050 men and 2688 women; Europe, 978 men and 130 women. The number of foreigners in Japan, exclusive of Formosa, on Dec. 31, 1916, was reported at 18,310 of the following nationalities: Chinese, 11,869; English, 2321; American, 1688; German, 681; French, 422; Portuguese, 214. The Ainos or native inhabitants of Hokkaido, numbered 18,670 in 1915. No later figures for the births, deaths, and marriages were available than those given in the 1918 YEAR BOOK. The populations of the largest cities reported for Dec. 31, 1916, were as follows: Tokyo, 1,224,796; Osaka, 1,460,218; Kyoto, 539,153; Kobe, 498,317; Nagoya, 489,272; Yokohama, 428,663.

PRODUCTION. Three-fifths of the land is reported to be under peasant proprietors and the remainder under tenants. The tax land owned by private persons and local corporations was officially reported on Jan. 1, 1918, at 15,089,949 cho (one cho=2.4507 acres); of which 5,333,863 cho were under cultivation; 7,983,947, forests; 1,307,442, plains; 43,413, pastures. The following table for principal crops in 1916 and 1917 is from the *Statesman's Year Book* of 1919.

Crop	Acreage		Produce (quarters)	
	1916	1917	1916	1917
Rice.....	7,680,322	7,554,807	36,526,904	34,099,600
Wheat.....	1,927,735	1,392,219	3,668,507	4,241,757
Barley.....	1,426,492	1,314,979	5,974,526	5,730,522
Rye.....	1,713,962	1,572,405	4,951,219	5,123,187
Tobacco*.	76,940	69,726	934,478	888,626
Tea*.....	122,345	118,898	727,361	752,591

* Produce in cwts.

The markets of Japan revolve around a single item of foodstuff—rice, which constitutes from one-third to two-thirds of the Japanese diet. Analysis of statistics for the past 20 years shows that the per capita consumption of rice is gradually increasing. In 1919 it averaged a little more than five bushels per year per person—about 5¼ bushels in 1918. From 1905 to 1915, inclusive, the average wholesale price of rice was \$1.26 per bushel, and a laborer's family of five, consuming 5¼ bushels per individual per year, would therefore expend \$33.05 for rice annually, computed on the wholesale price. But in 1919 the price of rice rose to \$5 per bushel, wholesale, and the annual cost per family of five thus increased to \$131.25. Rice, however, is not the only factor to be considered. For as rice advances other foodstuffs are substituted and also advance in price. The Tokyo Chamber of Commerce prepared a table of index numbers to show the prices of the principal necessities as of August, 1919. These index numbers are as follows, the basic price index of 100 being that of June, 1914: Rice, 301; barley, 337; sugar, 207; dried bonito, 294; beef, 269; eggs, 270; salted plums, 190; salted vegetables, 337; milk, 195; sake, 184; Japanese cotton, 298; coarse cotton cloth, 489; sheeting, 365; Japanese paper, 198; fuel wood, 293; charcoal, 284.

Rents increased during the past five years by 100 to 400 per cent. Before the war a respectable residence in a good neighborhood could be

secured for \$3.50 to \$5 a month, whereas a family of the middle class in 1919 pay from \$12.50 to \$25 for the same accommodations. The right of labor to organize was denied by the government authorities until 1918. Consequently no great strikes occurred. Instead, the outward manifestations of inability to keep pace with the increasing cost of living took the form of the rice riots of 1918. These demonstrations, however, failed to have any effect, and various methods were attempted by the government to correct the condition. Among the early efforts was the suspension of import duties on foreign rice, permitting free importation from Saigon and Rangoon. Among later attempts to reduce the cost of living was the establishing of government-operated markets, reduction of freights on goods consigned thereto, and the sale of government-imported rice at prices in some cases less than one-half of the exchange quotations. To overcome this controlling measure the rice exchanges adopted the policy of closing whenever a government sale takes place. Another remedy for high prices was the raising of interest rates by the Bank of Japan for the purpose of deflating the currency, if possible; but the increase was so small, amounting to but a small fraction of 1 per cent, that no arrest of prices can be attributed to it. All attempts to bring down the cost of living having failed, labor made demands for substantial increases in wages in all parts of the country, and all industries and walks of life from government officials down. The percentages of increase demanded varied from 40 to 150 per cent. Information concerning the movements in Europe and America for better work conditions and shorter hours also affected the labor market in Japan, and demands of this nature were made. The extent of the demands of labor led the government to draw up a labor-union bill in the autumn. The unions recognized by the bill, however, were not unions in the western sense, but associations formed by employees in individual factories. The bulk of the manufactured articles are made in the homes and the workers often give from 12 to 14 hours a day to their labor. See STRIKES AND LOCKOUTS.

COMMERCE. The following table from the *Statesman's Year Book* for 1919 shows the chief articles of the foreign commerce, excluding re-exports and re-imports, in 1917 and 1918.

Imports	1917	1918
	Yen	Yen
Rice	6,518,378	89,778,512
Beans and peas	9,488,910	20,395,248
Sugar	11,697,289	34,243,748
Raw cotton	330,976,081	515,558,989
Crude India rubber	9,130,798	12,898,623
Tar dyes	4,404,128	11,238,061
Hides and skins	5,947,167	12,075,746
Wool	52,112,487	60,160,195
Woolen yarn	1,034,241	243,990
Coal	9,038,383	15,751,204
Oil cake	55,846,019	92,083,647
Petroleum	5,304,987	8,400,817
Iron, bar, rod plates	166,742,578	205,100,160
Saltpetre	9,724,626	11,294,611
Machinery	30,875,199	59,278,017
Steam vessels	7,386,661	8,503,015
Pulp	2,800,741	6,593,764

Exports	1917	1918
	Yen	Yen
Cotton yarn	108,139,252	158,319,618
Cotton tissues	127,456,011	237,836,418
Raw silk	855,155,034	870,337,055
Silk waste	16,619,256	27,055,072

Exports	1917 Yen	1918 Yen
Silk manufactures	47,479,727	70,178,100
Coal	26,454,041	32,004,882
Toys	8,407,932	10,243,174
Matches	24,586,361	27,742,636
Copper	87,495,102	37,748,643
Camphor	5,304,157	3,686,377
Sulphur	6,128,030	3,570,046
Tea	21,754,755	23,057,722
Rice	14,667,246	8,339,459
Matting	2,179,570	2,907,084
Earthenware	14,473,934	19,957,755
Saké	2,163,679	2,638,606
Refined sugar	26,151,491	23,508,281

The imports of bullion and specie in 1918 were 392,224,967 yen, and the exports 153,736,340.

The following information is supplied by the United States Bureau of Foreign and Domestic Commerce: With the exception of a month and a half after the signing of the armistice in Europe, the foreign trade of Japan during the year 1918 again gave evidence of great advance. The remarkable increase is due mainly to high prices, however. The following statistics give the value of the imports and exports for the years 1917 and 1918 and a comparison with the figures for the pre-war year, 1914:

	1914	1917	1918
Imports ...	\$296,676,386	\$516,351,837	\$831,569,701
Exports ...	294,368,525	799,098,016	978,107,183

The countries showing the most notable increases in the amount of goods shipped to Japan during 1918, in the order of relative importance, were: The United States, China, Kwangtung Province, Dutch India, French Indo-China, Australia, British India, the Straits Settlements, South Africa, and Argentina. Imports from Great Britain show only a slight increase. Marked decreases occurred in the imports from Sweden, France, and Russia. Exports from Japan to the United States, British India, Australia, Dutch India, France, Argentina, the Straits Settlements, China, Kwangtung Province, Egypt, Canada, and South Africa show large increases, but there was a noticeable decrease in the shipments to Great Britain, Russia, and Italy.

The trade between the United States and Japan, both in imports and exports, exceeded that between Japan and any other country. The Japanese statistics show that imports from the United States were valued at \$179,312,973 in 1917, and \$312,073,727 in 1918, and exports to the United States at \$238,550,617 in 1917 and \$264,269,502 in 1918. The declared export returns, based upon the invoices certified for shipment to the United States at American consulates and agencies in Japan, show the total values of \$267,661,660 for the year 1917, and \$271,349,824 for 1918. Increases in these exports are most noticeable under the heads of rice, beans, cocoanuts and copra, wax, potato starch, peanuts, rapeseed oil, porcelain, wolframite, tea, watch glasses, and some chemicals. Decreases appear under exports of raw silk, silk textiles, antimony, copper, toys, hats, camphor, menthol, cotton textiles, tinned fish, rapeseed, bamboo and basket wares, buttons, and some chemicals.

After the close of the war, a decline of ex-

ports set in and lasted steadily during the first part of 1919. The chief decreases during the first quarter of 1919 were in silk, zinc, sugar, rice, tea, cotton yarns, and matches. On the other hand, there was a considerable increase in cotton cloth and other manufactures. The falling off in sugar is accounted for by the fact that during the war the sugar exports of Japan were greatly stimulated owing to the lack of competition, which on the return of peace was renewed. In the six months ending June, 1919, the foreign trade showed an increase of more than 100,000,000 yens over the first six months of 1918. The figures are as follows: (one yen equals 48.8 cents at normal exchange). Exports (1919), 827,416,823 yen; in 1918, 896,922,725. Imports (1919), 1,049,372,502 yen; (1918), 839,882,134. The leading exports of both periods in respect to value were articles wholly manufactured, including cotton tissues, silk, cotton clothing, etc., and manufactures for further use in manufacturing, including raw silk, cotton yarn, etc. The leading imports in respect to value during both periods were: Raw materials especially raw cotton, and manufactures for use in manufacturing, including iron in various forms, steel, lead and other minerals.

In respect to Japan's trade in late years with India the following information is supplied by the British Trade Commissioner: Official figures for 1918-19 show Japanese imports into India amounting to \$111,666,665, practically equivalent to one-fifth of India's total import trade. In 1917-18, Japanese imports totaled \$61,666,665 and in 1916-17 \$44,166,665. Japanese houses established in India played an important part in the trade. Large Japanese colonies in both Calcutta and Bombay appeared to be steadily growing in importance. Three Japanese exchange banks were carrying on business in India in 1919, whereas three years before there was only one; and in 1911 there were only 32 Japanese in the whole country, excluding Burma. In 1909, the greater part of Japanese products into India were carried in British ships, financed by British banks, and distributed by British or Indian traders, whereas in 1919 90 per cent of Japanese goods came in Japanese steamers; consigned to Japanese firms, and distributed by Japanese agents. Similar conditions obtained in the export trade. The Japanese Cotton Spinners' Association was said to dominate practically the raw-cotton market, and Japanese buyers were found in the cotton markets in rural areas.

SHIPPING. There were entered in 1917 9279 vessels with a tonnage of 19,406,809. The number of steamships entered from foreign countries was 1816 with a tonnage of 5,228,317; of sailing vessels, 12 with a tonnage of 5853. Of the total foreign ships 625 were British with a tonnage of 2,620,796; 566 Russian with a tonnage of 712,049; 68 Norwegian with a tonnage of 207,141, and 169 American with a tonnage of 475,522. The vessels entered and cleared in 1918 with their tonnage are shown in the following table:

Vessels	Number	Tons
ENTERED		
Steam	9,881	17,771,848
Sail	494	71,824
Total	10,375	17,843,672

Vessels	Number	Tons
CLEARED		
Steam	10,091	18,211,147
Sail	545	80,910
Total	10,636	18,292,057

The merchant navy of Japan exclusive of Formosa, consisted on Jan. 1, 1917, of 3750 steamers, with a tonnage of 1,716,104; and 20,301 sailing vessels with a tonnage of 701,094. The following list gives particulars of the tonnage in the ocean trade:

Route	No. of vessels	Gross tonnage
Japan-Pacific coast of North America..	23	125,335
Japan-New York	12	72,697
Hongkong-Japan-North America	16	140,462
Japan-Australia	27	94,457
East coast of South America	16	90,572
South Seas	54	143,734
European run	120	606,376
Japan-Straits Settlements-South Seas...	4	9,715
Japan-India	29	107,479
India-Mediterranean	3	8,399
Mediterranean	7	23,642
West coast of South America	3	24,863
Japan-South Seas-India	2	6,037
Japan-Java-Calcutta-New York	7	30,347
Japan-Mediterranean	8	25,709

RAILWAYS. The mileage of railways open to traffic on March 31st, for the years 1914 to 1917 inclusive is shown in the following table:

	1914	1915	1916	1917
State	5,473	5,686	5,757	5,856
Private	1,121	1,445	1,744	1,833
Total	6,594	7,131	7,501	7,689

In 1916-17 the post and telegraph offices numbered 7530; telegraph line, 26,352 miles; telephone line 8325 miles.

FINANCE. The revenue and expenditures for 1917-18 and the estimates for the two succeeding years are shown in the following table:

	1917-18 Yen	1918-19 Yen	1919-20 Yen
Revenue ..	1,084,624,242	823,305,480	1,037,000,000
Expenditure	735,023,012	823,305,480	1,058,000,000

The budget estimates for the year ending Mar. 31, 1919, were as follows:

ESTIMATES

Revenue 1918-19		Yen	Expenditure 1918-19		Yen
Ordinary:			Ordinary:		
Land tax		72,275,789	Civil list		4,500,000
Income tax		66,462,095	Foreign affairs		5,766,713
Business tax		26,207,268	Home affairs		15,394,458
Liquor tax		94,621,578	Finance		193,190,691
Sugar excise		26,509,478	Army		84,394,336
Tax on textile fabrics		17,922,541	Navy		51,620,470
Customs duties		35,238,460	Justice		13,528,624
Other taxes		25,127,554	Instruction		20,959,463
Total taxes		368,367,758	Agriculture and commerce		8,012,370
Stamps		37,777,998	Communications		80,016,181
Public undertakings and state property ..		199,715,166			
Posts and telegraphs		87,747,603			
Forests		12,739,487			
Monopolies		71,991,982			
Total ordinary (including other receipts) ..		642,683,019	Total ordinary		480,083,306
Extraordinary revenue		180,622,461	Extraordinary expenditure		343,322,174
Total revenue		823,305,480	Total expenditure		323,305,480
		(£84,046,778)			(£84,045,768)

GOVERNMENT. The ministry at the beginning of the year was constituted as follows: Prime Minister and Minister of Justice, Kei Hara; Interior, Takejiro Tokonami; Foreign Affairs, Viscount Yasuya Uchida; War, General Giichi Tanaka; Marine, Admiral Tomosaburo Kato; Finance, Baron Korekiyo Takahashi; Agriculture and Commerce, Tatsua Yamamoto; Education, Tokugoro Nakahashi; Communications, Utaro Noda.

HISTORY. At the beginning of the year the suffrage question was engrossing attention. It had been brought up on December 18th when the minister of the interior promised that the government would bring in a bill for the extension of the suffrage and for more liberal features of constitutional government. This was followed by agitation on the part of students and politicians including members of the imperial diet. The government followed the policy of mildness in dealing with mass meetings and other demonstrations. The need of extending the vote was urgent from the point of view of the liberal element from the fact that out of 60,000,000 people or more only 1,600,000 men could vote. See KOREA. The representatives of Japan at the Peace Conference were Marquis Saionza, Baron Makino, Viscount Chinda, Mr. Matsui and Mr. Ijuin. Upon the formal opening of the parliament at the end of the year the Prime Minister Hara declared that the government intended to apply itself to the serious problems before it including the food question, the foreign difficulties, especially with China, and above all the extension of the franchise. On this last point he said that the government was prepared to meet the will of the people. The franchise at that time was possessed by male subjects of not less than 25 years of age having certain qualifications as tax payers and residents. The Prime Minister declared that social and industrial conditions in Japan compared favorably with those in Europe. As to foreign affairs Japan must undertake a careful propaganda in order to correct the misunderstanding of Japanese motives and ideals and to offset the illiberal propaganda in Japan in respect to her national aims. The main interest of the year centres in Japan's attitude at the Peace Conference and especially in the Shantung question. See WAR OF THE NATIONS.

See NAVAL PROGRESS; ZINC; TERAUCHI; UNIVERSITIES AND COLLEGES.

JAVA. The largest island and the chief seat of Dutch power in the Dutch East Indies, containing about 80 per cent of the population of the Dutch East Indian possessions. Capital, Batavia. Chief export, sugar (production, 1917, 1,124,708 tons). See DUTCH EAST INDIES.

JEFFERSON, JOSEPH. Actor, died in New York City, May 1. He was born in New York City, July 6, 1869, a son of the late Joseph Jefferson. He went on the stage at Denver in 1885, appearing with his father. He afterwards frequently appeared in his father's troupe. In the latter part of his life he appeared in vaudeville.

JERSEY CITY, N. J. See AQUEDUCTS.

JEWS AND JUDAISM IN 1919. STATISTICS. Owing to the chaotic state of the political and social life in all the countries of eastern and central Europe it is still impossible to ascertain the exact figures of the number of Jews in those countries. The estimates given below are therefore of necessity based on censuses taken in the years immediately preceding the war. This, however applies only to the European countries, but as far as the countries outside of the War Zone are concerned, the figures were wherever possible brought up to date. Moreover in view of the fact that no new censuses were as yet taken of the inhabitants in the newly created states in eastern, southeastern and in central Europe, it was deemed advisable to retain the previous political divisions in stating the number of Jews in a given geographical unit. The figures given in the last issue of the (1919-1920) of the *American Jewish Year Book*, the source at hand of authentic Jewish statistics are as follows: Total number of Jews in the world, 15,124,319, distributed through the continents in the following order: Europe, 10,815,655; America, 3,541,225; Asia, 433,332; Africa, 359,722, and Australia, 19,415. The countries with dense Jewish population are: In Europe, Russia (former empire) 6,946,090 followed by Austria-Hungary (former Empire) 2,258,262, Germany with 615,021, Rumania with 239,967, Great Britain with 263,648, the Netherlands with 106,309, France with 100,000, Greece with 88,787 and European Turkey with 75,000. In America the United States, with 3,300,000 Jews, Canada with 120,000, and the Argentine Republic with 110,000. In Asia, Asiatic Turkey with 177,500 and Palestine. In Africa, Morocco with 103,712, Algeria with 70,270, Tunis with 54,664, and Union of South Africa with 47,000; are the leading centres of Jewish population.

In judging the correctness of these figures we are to take in consideration the devastating effects of the war massacres and famine and want prevalent in East and Central European countries upon the Jews inhabiting them. But on the other hand there is to be taken into account the natural increase which though undoubtedly diminished under the circumstances, yet amounts to a considerable figure, and the fact that the tide of immigration from those countries was almost completely stopped for the last five years. The number of Jews throughout the world may still be set as between fourteen and fifteen millions.

GENERAL EVENTS: Jewish history in 1919 presents as far as the European countries are concerned, a continuous dark and gloomy pic-

ture almost without any ray of light. The process of disruption in East European Jewry which was begun last year by the gradual breaking up of the former Russian Empire was completed this year by the creation of a number of new states out of the shattered remains of the two great empires, the Russian and the Austrian. The former two largest centres of Jewish population are now divided in a considerable number of smaller centres which division diminished considerably the moral and spiritual resistance of the Jews to the tribulations that had befallen them. Moreover, this sudden transition from one established political régime to another which has not found its way yet and is still in a chaotic condition, affected disastrously the station of the Jews. The constant strife going on in Bolshevik Russia reduced the economic position of the Jews of that country to the lowest economic situation. Subsisting largely on trade, commerce and industry, their position grew worse daily with the gradual decline of the former. On account of the blockade against Russia they were even deprived of the benefits of the American Jewish relief and were left to shift for themselves.

This constant bitter struggle for mere bare existence has at last affected the spirit of this formerly active Jewry. The inner life of Russian Jewry is rather poor in events. Where want, starvation and famine stalk abroad there is little place for intellectual and cultural activity. Moreover in their endeavors for preservation of their cultural heritage, the Jews of Russia were thwarted by the Bolshevik government which looked upon all such attempts as reactionary aspirations. Yet, Jewish activity was not entirely at a stand-still. A Union of Russo-Jewish communities was effected, a number of secondary schools with Hebrew as the language of instruction, and an attempt was even made to open a Jewish University in Moscow, but it was later closed by the Bolsheviks. Especially precarious was the Jewish situation in Ukraina. This part of the former Russian empire constantly changed hands. It was the battle ground between the Bolsheviks, Denikin, Petlura and numerous bands of robbers. In this mad political and military whirlpool the Jews were completely crushed. Misery and agony were their lot. And the wave of suffering which swept over the Jews of Ukraina swept away all vestiges of the formerly Jewish cultural activity which flourished so beautifully during last year.

Poland presents a slightly better picture. The more stable character of the government and the comparative ease of communication with the outside world gave the Jewish life a more normal aspect: Polish Jewry was greatly benefited by the receipt of millions of relief money from America. During the year the American Joint Distribution Committee sent several ships laden with food and clothing to Poland, and this has contributed greatly to the alleviation of misery of the Polish Jews. But on the other hand, the constant manifestations of hatred both on the part of the populace and the government, the economic boycott and unofficial acts of persecution have continued to aggravate the economic situation of the Jews. Yet the inner life of the Jews of Poland has displayed remarkable vigor. A feverish social activity was manifested during the year. Early in the year a Jewish Congress attended by 500 delegates was held at

Warsaw. This Congress devoted itself to the question of obtaining civil and national rights. Especially intense was the educational activity among the Jews. A large number of elementary and secondary schools where Hebrew is the predominant language were opened during the year and preparations were made by the Mizrahi, the Orthodox branch of the Zionist Organization, to open a Theological Seminary and Teachers' College at Warsaw.

The Jewish situation in Lithuania is probably the brightest spot in this gloomy picture. The Jews have played a considerable part in the political life of this newly created republic and the attitude of the government towards the Jew was exceptionally fair. But the high political position of the Jews could in no wise counterbalance the misery and suffering entailed by economic ruin and unstable conditions, the inner life reflected the poverty of the material life. The same picture of gloom and misery presents itself to us in every country of eastern and southeastern Europe. Rumania has not changed its traditional policy of Jew oppressing. Officially it granted them equal rights, but it evolved a number of technicalities which practically bars almost the majority of the Jews from citizenship. The newly created state of Czechoslovakia proved hardly better than her neighbors on the east and south, Poland and Rumania, as far as the Jews are concerned. Theoretically the Jews possess equal rights in that state, but in practice these rights were curtailed by the people themselves innumerable times.

The only single spot of light which relieves monotony of the view is the chapter written by American Jewry. Its page; a page full of activity, general and Jewish, and aglow with life in all its various colors.

POGROMS AND PERSECUTIONS. Disabilities in the old-fashioned way of government enactments against the Jews, have disappeared during the year, at least from the statute books. The spirit of the age has accomplished at least an official incorporation in the constitution of the new states of the grant of civil and political equality to the Jews. In practice however, not only were many disabilities retained but increased in number and have amounted to actual persecutions. But this aspect is only too bright as compared to that of the pogroms. Pogroms is the most terrible word written in Jewish history, of the year. Attacks on the Jews have become a daily occurrence in Jewish life of eastern and south eastern Europe. So frequent have the massacres become that they ceased to stir the conscience of humanity. To Poland and Ukraina belongs the palm in pogrom-making. The number of massacres and pogroms during the year in the former Slavic countries amounts to over a hundred. Especially atrocious were the pogroms at Pinsk and Vilna where a considerable number of Jews were killed in cold blood by the military and the representatives of the government. As the protest against the inhumanities in Poland grew louder the pogroms slackened down and the life of the Jew became comparatively safe. It was then that Ukraina came to the front and exhibited to the world a blood curdling spectacle. Bands of savage Cossacks swept through hundreds of cities and left death and desolation in Jewish communities in their wake. The number of killed in the Ukrainian massacres alone runs into tens of thousands,

besides twice that number in maimed, wounded and outraged women. Attacks upon the Jews occurred, though to a lesser degree in Czechoslovakia, Rumania, and even in civilized Hungary. This bloody page in Jewish history of the year is of the bitterest memory to the Jews but it constitutes also a blot upon the 1919 history of the Christian world, which displayed remarkable indifference to the agony of an ancient nation.

RELIEF AND THE STRUGGLE FOR JEWISH RIGHTS. The great suffering of the Jews of eastern Europe during the year stimulated intense relief activity in American Jewry. Over ten millions were raised for the Relief Fund by the various committees. Due to the fact that with the conclusion of the armistice the channels of communication with Poland, Rumania and Austria were opened, the distribution of the funds proceeded in a more orderly way. A number of commissioners were sent to the above countries who personally supervised the distribution of the funds. Moreover the commissioner's experts in social and charitable work devoted themselves to a scientific study of the situation and elaborated plans for widening their scope of relief work to include also the phase of reconstruction. The Joint Distribution Committee has sent in addition to money also food and clothing. Early in the year the committee has fitted out a supply vessel, with a two million cargo of food and clothing destined for Poland. Later additional cargoes of food and meal were sent to Poland and Rumania. Great sympathy for the relief activity was shown by governors of many states who issued proclamations setting aside special days as Jewish relief days.

The terrible massacres and atrocities committed against the Jews of eastern Europe called forth a feverish activity among the American Jews to protest against the outrages and thus, by the protests and demonstrations arouse the public opinion and the conscience of humanity. A number of conferences, mass-meetings and demonstrations were held during the year which have done much to awaken the sense of justice of the American people. Of special importance were the demonstrations arranged on May 21st in New York City as a protest against the pogroms in Poland and the one in October as a protest against the massacres in Ukraina; more than a hundred thousand Jews participated. In each case the demonstration culminated in monstrous mass-meetings in Madison-Square Garden and Carnegie Hall, respectively. American Jews were also greatly instrumental in having the minority rights clause written in the Peace Treaty. An influential delegation of prominent American Jews elected as representatives of American Jewry by the American Jewish Congress held in December, 1918, went to Paris, and together with the other delegation from other countries, presented the memorandum on Jewish rights to the Peace Conference. The influence of the American delegates was greatly felt, due to the sympathetic attitude towards the Jewish claims of President Wilson and the other American delegates to the Conference.

LABOR AND LEGISLATION. The foregoing year which was marked by deep unrest in the general labor world strikes on a large scale having occurred almost daily, was as far as Jew-

ish labor and industry is concerned a rather quiet year. Besides unimportant strikes in some of the lesser industries, such as the millinery trade, there were no disturbances in any of the large industries particularly known as Jewish. The clothing industry has demonstrated during the year, that an amicable adjustment between labor and capital is possible by introducing the 44-hour labor week in almost all union shops of the trade. Legislative acts affecting the Jews are comparatively few. In Arizona the governor vetoed a bill providing for the reading of the Bible in the schools. In New Hampshire and some other States bills were passed making racial discrimination in hotels a misdemeanor.

LITERARY AND MINOR EVENTS. The year boasts of no exceptional record in literary activity. There occurred the usual increases and lapses in the periodical Jewish press. The added member to the Jewish English periodicals family is *The Journal for Jewish Lore and Philosophy*, a scientific quarterly published by the Ark Publishing Co. of Cincinnati and edited by the able scholar and philosopher, Prof. David Neumark, member of the faculty of the "Hebrew Union College." The deceased member of that family is the *American Jewish News*, a weekly of the lighter type which appeared for the last two years. There were also some fluctuations in the Yiddish press, the *Warheit*, a daily appearing for the last eight or nine years coalesced with one of its rivals, *The Day*. It is however, destined that the number of Yiddish newspapers in this country should not be diminished, for preparations were completed by Herman Berenstein, the well-known journalist and correspondent, to issue on the first of the year, a daily by the name of *The Haint* (The Present). Two notable additions were also made to the Hebrew press by the appearance of two monthlies, *The Mikloth*, (The Refuge) and *The Tarbut* (Culture). The first published by the Stybel Publishing Co., New York, and edited by I. D. Berkowitz, is of a rather high literary character, the second one published by the Histadruth Ivrit, an organization for the spreading of Hebrew culture and edited by Mr. I. Sharfstein, is devoted primarily to the interests of Hebrew pedagogy. Of the books appearing this year, the most important are: A number of volumes of the new edition of the *Babylonian Talmud*, published for the first time in America, by the Union of Orthodox Rabbis, the *Kitzur Hatalmud*, a digest of the *Talmud*, with a new commentary, and scientific introductions to each tractate by Dr. I. Chernowitz of Luzonne, Switzerland, and the *History of Zionism* in two volumes by Nahum Sokolow, a most comprehensive history of the movement. Yiddish literature suffered a great loss in the death of Jacob Dinesohn of Warsaw, the veteran of Yiddish literature who contributed much to its development. Reform Jewry in particular mourns the loss of one of its exponents in Germany, Dr. Ludwig Geiger, for years editor of the *Allgemeine Zeitung des Judenthums*. The death of Adolph Stand, one of the leading Zionists, Jewish Journalists and politicians of Austrian Jewry, forms a heavy blow to that shattered Jewry. Zionists and Nationalists and Jews of all shades joined in the celebration of the seventieth birthday of the famous Zionist leader, Dr. Max Nordau.

Of the minor events there are to be noted the

celebration by Reform Jewry of America, the centenary of birth of Isaac M. Wise, founder of Reform Judaism in America, the celebration of the Seventieth Anniversary of the Congregation Bnai Jeshurun of Newark, N. J., and the establishment by Yale University of the Alexander Kohut fellowship in Semitics on the twenty-fifth anniversary of his death.

ZIONISM AND NATIONALISM. Zionism continues its progress during the year. Intense activity was displayed by the Zionists throughout the world. Even the war-swept countries contributed their share. Zionist Conferences were held in all continental countries including Germany, Poland and parts of Russia. Much constructive work was done by the Zionist Commission in Palestine. Preparations were made to begin work on a large scale as soon as the status of Palestine is definitely determined. The renewed assurance given by the English government through Lord Curzon, the successor of Balfour on the second anniversary of the declaration, of its intentions to keep its promise, added new courage to Zionist work. Preparations were completed in this country by the two Zionist federations, the Zionist Organization of America, and the Mizrahi Zionist Organization, the conservative branch of the movement to launch extensive campaigns for large funds. Of the Zionist Conventions held during the year the most important are, the Zionist Conference in London, in the month of February, in which there participated the leading Zionists of all countries, the Convention of the Mizrahi of America at Cincinnati in May, and that of the Zionist Organization at Chicago in September. Both conventions were attended by hundreds of delegates. The number at the Chicago Convention amounted to about a thousand.

JOHNS HOPKINS UNIVERSITY. A non-sectarian educational institution which admits women to some of its courses, located at Baltimore, Md. It is famed chiefly for its graduate department. The university was founded in 1876, by the will of a Baltimore merchant whose name the institution now bears. The enrollment for the fall of 1919 was 2969 and for the summer session, 422; the faculty numbers 334. Noteworthy additions to the faculty for the year beginning October, 1919, include Tenney Frank, Ph.D., as Professor of Latin; H. Carrington Lancaster, Ph.D., as Professor of French; Gilbert Chinard, also as Professor of French; Lewis H. Weed, M.D., as Professor of Anatomy; Sir Arthur Newsholme, M.D., K.C.B., as Resident Lecturer in Public Health Administration in the School of Hygiene. The productive funds amount to about \$7,000,000; the income from all sources for the year 1918-19 was \$928,000. The books of the library number 215,000 bound volumes. Important gifts to the institution include the bequest of Joseph De La Mar of \$2,500,000 for medical instruction and research; the bequest of \$350,000 from Mrs. William H. Graffin, of Baltimore, for general purposes; \$200,000 from the estate of Mrs. Thomas K. Carey, of Baltimore, for expenditure at the discretion of the trustees; \$200,000 from the estate of Eugene Mergenthaler, of Baltimore, for a scientific laboratory or for scientific research; \$20,000 from the estate of Mrs. J. A. J. Creswell of Maryland, for instruction and research in international law. The newly estab-

lished School of Hygiene and Public Health is now in full operation and is becoming a recognized power in the community. President, Frank J. Goodnow, LL.D.

JOHNSON, THOMAS MOORE. Philosophical writer, died at Kansas City, Mo., March 3. He was born at Osceola, Mo., Mar. 13, 1851, and graduated at the University of Notre Dame, Indiana, in 1871. He practiced law in Missouri and was on two occasions prosecuting attorney for St. Clair County. He was mayor of Osceola for 13 years. For many years preceding his death he had retired from his profession to devote himself to the study of philosophy, especially the philosophy of Plato. He was the author of *Plato and His Philosophy*, (1906), and translated a number of works pertaining to Platonic philosophy.

JONES, GEORGE HEBER. Missionary, died at Miami, Fla., May 10. His missionary activities in the Far East, particularly in Korea during many years made him an authority on Korean matters. He was born at Mohawk, N. Y., Aug. 14, 1867, and was appointed missionary to Korea by the Methodist Episcopal Church in 1887. He was president of the Biblical Institute of Korea in 1907-11 and he was delegate from Korea to the General Conference in 1912. From 1915 to 1918 he was a lecturer on missions in the Boston University School of Theology. Besides contributing to periodicals in the Far East and this country he wrote *Korea, Country and People*, (1907); *An English Korean Dictionary of Scientific and Technical Terms*, (1910).

JONES-REAVIS BILL. See ENGINEERING.

JUDSON, FREDERICK NEWTON. Well-known American lawyer and legal writer, died at St. Louis, October 17. His legal text books were widely used, and he was counsel of important interests and member of many public commissions and boards. He was born at St. Mary's, Ga., Oct. 7, 1845, graduated at Yale in 1866, and at the St. Louis Law School, 1871. He was private secretary to the Governor of Missouri (1871-3), president of the Board of Education of St. Louis (1880-82, and 1887-89); and was special counsel of the United States in the affair of the Sante Fé and Colorado fuel rebate cases. In 1910 he was member of the commission to investigate the power of Congress to regulate the security of railroad issues, and in 1912 he was on the board which settled the dispute between locomotive engineers and the railroads in the East. In 1913 he lectured at Yale Law School. During the war he was member of the War Labor Board. Shortly before his death he was one of the signers of the report of the special committee of the American Bar Association supporting the ratification of the Peace Treaty, and he held other important offices. His writings included *Law and Practice of Taxation in Missouri*, (1900); *The Taxation Power, State and Federal in the United States*, (1902, 2d ed., 1917); *The Law of Interstate Commerce*, (1905, 2d ed. 1912, 3d ed. 1916); *The Judiciary of the People*, (1913), and of various writings on legal and economic subjects.

JUGO-SLAVIA. A new state formed out of the component parts of the old Austro-Hungarian Monarchy, consisting of southern Slav or Jugo-Slav lands. On Oct. 30, 1918, a National Assembly of the Croats proclaimed the independence of Croatia, Slovakia, and Dalmatia. At the end of November the National Council

voted for union with Serbia and Montenegro, and bestowed the regency of the new kingdom upon the Crown-prince Alexander of Serbia. The National Council assumed to represent all Jugo-Slav territories, namely: Croatia, Slavonia, Dalmatia, Bosnia-Herzegovina, Carniola, Carinthia, Styria, Istria, Gorizia-Gradisca, Quarnero Islands, the Dalmatian Archipelago and Southern Hungary (the Banat, Batceka and Baranya). The status of some of the above lands was unsettled, pending the Peace Conference, the principal points in dispute being with Italy. During the formation of the new government and afterwards there were two separate tendencies which threatened a conflict, first, a movement toward a democratic republic, and second, a movement toward a kingdom of Serbs, Croats, and Slovenes, comprising Serbia and Montenegro along with the Jugo-Slavs and having a population of from twelve to thirteen millions.

RAILWAYS. The railway situation in Jugo-Slavia was of interest during the year as the richest Yugoslav province, Wojwodina, had only one railway connection with Serbia, that over the Sava bridge at Semlin. This railroad was glutted with the traffic with Croatia, Bosnia, Dalmatia, and Slovenia, as well as the transit traffic with Rumania and the result was that Wojwodina is almost entirely cut off from Serbia. It was proposed that foreign capital should build a large railroad bridge over the Danube between the Banat town Kovin and the Serbian Smederevo. Influential circles in the Banat and in Serbia were in favor of the project.

THE NEW GOVERNMENT. As noted in the preceding YEAR BOOK, the government was formed on Dec. 21, 1918 under the former Serbian Premier M. Protitch. One disturbing element was the attitude of Montenegro whose King, Nicholas, claimed independence for his country and rejected the act of the National Assembly. But according to many accounts he had not many supporters in his own country, largely on account of the attitude of himself and his family during the war, which was said to have been too complaisant toward Austria-Hungary. One of the first acts of the new government was to notify the governments of the Entente, and of neutral countries that the new kingdom had been formed by the fusion of the old kingdom of Serbia with the Serbs, Croats, and Slovenes of Austria-Hungary, and with Montenegro. The head of the government was Prince Alexander, and the Prime Minister M. Stoyan-Protitch with M. Trumbitch as Minister of Foreign Affairs, and M. Kovosec Vice-President of the Council. The year opened with a declaration on the part of the government which foreshadowed the difficulties with Italy. On January 2d this manifesto was published: The Jugo-Slavs would do everything to avoid war with the country to whose victory they had contributed by their blood, but they would never permit the unprecedented sacrifices borne by them and by Serbia in it, in order to defeat Austria-Hungary, to result in giving their fellow countrymen over to another power as slaves. In the internal affairs the government was bitterly attacked by those groups who were opposed to a unitary state and who favored a federated union. Also there were tendencies on the part of certain elements to revolt against the dominance of the Serbs.

POLITICAL CONDITIONS. There were frequent

reports in the United States of disorders amounting almost to civil war. These, however, were denied by prominent persons in Yugoslavia. The country, however, was torn by rival national and political factions. The Democratic party held out a measure of agrarian reform which would give the peasants the ownership of the land. There were also the radical Serbs and the radical Croats who were bent on a race programme. Against these were the democratic elements of all the races in the new states with a programme of economic reorganization. The political strength seemed to be about equally divided between this combined Democratic party and the union of all the other parties, but their strength could only be ascertained at the approaching election. As to the Italian claim on Fiume, the Yugoslavs argued that their state could not exist without the entire Adriatic Coast. Fiume they said was the only modern port with a good railway connecting it with the interior. They declared that Dalmatia was almost exclusively Yugoslav, and that even in Fiume the Italians were not in the majority. For further discussion, see *WAR OF THE NATIONS AND ITALY*.

THE AUSTRIAN TREATY. The Jugo-Slavs objected seriously to certain clauses in the treaty with Austria, especially those for the protection of racial minorities. Much indignation was aroused by M. Clemenceau's declaration after the conclusion of the Treaty with Bulgaria implying that Rumania would not be permitted to sign that Treaty unless she signed the Austrian Treaty first. The Jugo-Slav delegates had agreed to sign the latter on November 26th, but on their assertion that they lacked authorization to accept certain annexed clauses, namely those concerning minority protection, Italian reparation, and the apportionment of the cost of liberation from the old Austrian-Hungarian state, eight days were allowed them. The Prince Regent, Alexander of Serbia, arrived in Paris, December 1, to discuss the matter.

JUILLIARD, AUGUSTUS D. Capitalist, died at New York, April 25th. He was born at Canton, Ohio. He was well known in New York and vicinity as the senior member of the firm of A. D. Juilliard & Co., and he was an officer or member of the leading financial institutions of the city.

JUILLIARD MUSICAL FOUNDATION. See *MUSIC, General News*.

JULIEN, ALEXIS ANASTAY, died at South Harwich, Mass., May 7. He was born in New York City, Feb. 13, 1849, and graduated at Union College 1859 and for four years, 1860-64, was resident chemist of the guano island of Lombrero where he studied geology and natural history and made collections. He joined the faculty of the School of Mines, Columbia University, in 1865, and was curator of geology from 1897 to 1909. He was connected with the State surveys and he made report on the building stones of New York for the 10th Census.

JUTLAND, BATTLE OF. See *NAVAL PROGRESS*.

JUVENILE COURTS. The establishment of separate courts for cases of juvenile delinquency has become a recognized part of judicial systems in this and in many foreign countries. Such courts were founded because of the conviction that formal courts were unable to deal intelligently with juvenile offenders, since their cases seemed to call for treatment rather than punishment. Juvenile courts, therefore, provide

for hearings conducted by a special judge, with only those persons present who are immediately concerned, and without a jury. An effort is made to diagnose the causes of delinquency through searching investigation, and when such causes have been determined, to take steps that seem best calculated to remove them. The more efficient juvenile courts make extensive use of medical and psychological examinations as a basis for diagnosis. Probation systems are usually a complement to the courts proper, and often delinquents are given into the charge of their parents or guardians, commitment to reformatories being reserved as a last resort. Probation officers are employed both to investigate conditions attending delinquency, and to report on the progress of probationers. At the present time there is a strong tendency to extend the jurisdiction of the juvenile court to all cases concerning child welfare.

Legislation pertaining to juvenile courts and delinquent children is carefully compiled by the Children's Bureau, United States Department of Labor, Washington, D. C. A brief résumé of 1919 legislation in the United States follows:

Alabama establishes a system of juvenile courts in counties of 150,000 population or over, with exclusive jurisdiction over dependency, neglect, or delinquency of any male child under 16 or female child under 18 years of age. Arizona increases the efficiency of its juvenile court act by providing for volunteer advisory officers, one probation officer (salaried) for each county; more adequate reports concerning paroled delinquents; facilities for physical and mental examination of delinquent children upon order of the court; juvenile court jurisdiction over detention homes. California made some minor changes in its juvenile court law, notably a measure providing that full or partial payment of charges for maintenance of children committed to state institutions be borne by their parents or guardians. Delaware provided for a probation officer for each county to act under the jurisdiction of the Court of General Sessions. Idaho adopted an inclusive act "to provide for the protection, receiving, caring for, aiding, placing out for adoption, or improving the condition of the orphan, homeless, neglected, dependent, abandoned or abused child, conferring power upon charitable societies . . . for the accomplishment of these purposes; conferring power upon the judge of the probate courts and the county commissioners; and providing for the punishment of persons inducing a child to leave the person, institution, or society under whose control it is." Indiana established a juvenile court in Vanderburgh County; provided for salaried probation officers for all counties of the state; and amended former law so as to allow court to commit any male offender between the ages of 10 and 16 to State Reformatory rather than jail. Iowa extended the jurisdiction of juvenile court to certain cases of dependent and neglected, as well as delinquent children. Kansas enacted a law permitting any county having a city of 53,000 population to erect "a parental home for homeless, dependent, neglected, or delinquent children. Maine closed juvenile court records to public inspection, and provided for the appointment of female, as well as male, probation officers. Massachusetts set the salary of the Justice of the Boston Juvenile Court at \$4000 annually. Michigan provided

that when the rehearing of a juvenile case is granted, the probate judge who heard the case may not hear it again, but the circuit judge of that county or the probate judge of another county shall hear such case. Minnesota provided for salaried investigators to report on cases of dependent children for whose support, in their own homes, state funds are being used. Missouri overhauled its juvenile court act, provided for commitment of delinquent girls to Industrial Homes; reduced age limit of children brought before courts of misdemeanor from 18 to 17; raised salaries of juvenile court officers; and established Board of Paroles in counties of over 80,000 population. Montana passed a very strong amendment to its juvenile court act, providing for juvenile court proceedings in the case of every child under 18 taken into custody. Provision is made for careful investigation of every case by probation officer, who can recommend discharge without bringing child to court; the act makes it unlawful to confine juvenile delinquents with adult convicts. Nebraska established juvenile courts in every county of 50,000 population, and provided for probation officers for each court. Nevada made provision for a volunteer "Probation Committee" to investigate state institutions receiving children on commitment; regulated commitment of children under 18, making it possible to have them placed in private families; inaugurated a system of paroles and probation. New Jersey increased the number of officers and attendants of juvenile courts. New Mexico created an unsalaried "Girls Welfare Board," to consist of five women, and to have entire charge of girls under 18 released on probation. New York amended its penal law in regard to commitment of children to house of refuge, state industrial school, and New York Training School for Girls. Oregon enacted a law creating a "Court of Domestic Relations" which also has exclusive jurisdiction in all proceedings concerning dependent, delinquent, and neglected children; a comprehensive act for the "Care and Protection of Children" under 18 years of age was also adopted in 1919. Pennsylvania adjusted some matters of financial administration for its juvenile courts. Tennessee created a juvenile court for the city of Kingsport, with jurisdiction over offenders of either sex under 18. Texas established a State Home for Dependent and Neglected Children. Vermont extended probation privileges after investigation and recommendation of probation officer, and provided for committed children's maintenance. West Virginia amended its juvenile court act, adopting a very complete code the purpose of which is summed up in Section 19: "This act shall be liberally construed to the end that its purpose may be carried out, to wit: that the care, custody, and discipline of a child shall approximate, as nearly as may be, that which should be given by its parents, in cases of delinquency; that as far as possible, any delinquent child shall be treated, not as a criminal, but as misdirected and misguided, and needing aid, encouragement, and assistance, and if such child cannot be properly cared for and corrected in its own home, or with the assistance and help of the probation officers, then it may be placed in a suitable institution where it may be helped and educated and equipped for industrial efficiency and useful citizenship." Wyoming amended its law relating to commitments to

the House of Refuge; delinquency was defined as offenses committed by members of either sex under 21 years of age. Connecticut provided for the hearing of first-prosecution cases against children under 16 in private chambers, except in cases involving state-prison or death-penalty sentences. Wisconsin provided for probation or suspended sentence alternative for minors of either sex sentenced for the first time, and for not more than 10 years. The texts of the Ohio and Arkansas laws were not available at the end of the year.

KAISER WILHELMSLAND. A former German colony situated in the northern portion of southeastern New Guinea; bounded on the west (at longitude 141 deg. east) by Dutch New Guinea, and on the southwest by Papua (British). It formerly made up the larger part of what was known as German New Guinea, that is to say the territory held by Germany in the western Pacific. The interior is little known and the estimates of the native population vary from 110,000 to 350,000. It was acquired by Germany in 1884 and was declared a protectorate: from 1885 to 1899 it was under the control of the New Guinea Company. At the outbreak of the great war in 1914 it was occupied by the Australian forces and from that time was under Australian administration.

KAMERUN, CAMEROON or CAMEROONS. Formerly a German protectorate situated in west central Africa between Nigeria (British) and French Equatorial Africa and extending north to Lake Chad and east as far as the Ubangi River. The coast line is interrupted by Spanish Guinea. In 1911 a large tract of French territory was transferred to Germany by the Franco-German treaty of November 4th in that year and is known as New Kamerun. Area, exclusive of French cession, 191,130 square miles; population estimated at 2,540,000. The whites in 1913 numbered 1871. The French cession had an area of 107,210 square miles and a population of about 1,000,000. The seat of administration under German control was at Buea. Other important towns and trading stations are Duala, Victoria, Krivi, Rio del Rey and Campo. A British force invaded the colony Aug. 24, 1914, and French and British troops had completed the conquest by Feb. 18, 1918. After the occupation the administration was divided, the region formerly belonging to France being placed under the government-general of French East Africa and the rest under the government of Nigeria (British). Near the coast the soil is fertile and there are valuable plantations of rubber, cocoa, oil palms, etc., whose products constitute the chief exports. The minerals include gold and iron and the forests are rich in ebony and other hard woods. The total length of railway in 1913 was 149 miles. No later figures for trade, finance, etc., are available than those given in preceding YEAR BOOKS. Direct cable communication with Germany was opened in 1913, and there was already a cable in operation between the colony and Bonny in Southern Nigeria.

KANSAS. POPULATION. The population of the State in 1910 was 1,690,949, and on July 1, 1919, it was estimated to be 1,896,520, a gain during the twelvemonth of 22,000.

AGRICULTURE. The following table is compiled from a report of the federal Department of Agriculture.

Crop	Year	Acreage	Prod. Bu.	Value
Corn	1919	4,475,000	69,362,000	\$97,107,000
	1918	6,130,000	43,523,000	64,849,000
Oats	1919	1,574,000	44,229,000	32,287,000
	1918	2,329,000	51,238,000	37,404,000
Wheat	1919	11,624,000	151,001,000	324,652,000
	1918	7,248,000	102,008,000	202,996,000
Hay	1919	1,832,000	a 4,507,000	71,211,000
	1918	1,869,000	a 3,233,000	62,720,000
Potatoes	1919	68,000	5,168,000	9,819,000
	1918	80,000	4,240,000	6,106,000
Sorghums	1919	1,040,000	17,888,000	26,832,000
	1918	2,139,000	20,107,000	30,160,000

a Tons.

TRANSPORTATION. The total mileage of single first track in the State in 1919 was 9648. The Atchison, Topeka & Santa Fe, and the Missouri & Pacific are the longest roads in the State.

CHARITIES AND CORRECTIONS. The following is a list of the institutions under the control of the state board of administration: Penitentiary, Lansing; Industrial Reformatory, Hutchinson; girls' industrial school, Beloit; boys' industrial school, Topeka; industrial farm for women, Topeka; hospitals, at Topeka, Oswatomie, Larned, and Parsons; home for feeble-minded, Winfield; orphans' home, Atchison; tubercular sanatorium, Norton; school for the blind, Kansas City; school for the deaf, Olathe.

EDUCATION. The total school population in 1918 was 620,991, and the enrollment was 405,319. The average daily attendance was 288,236. There were 16,398 teachers in the schools.

FINANCE. The receipts for the year ending June 30, 1918 amounted to \$16,066,209 while the disbursements were \$15,005,384. The balance in the treasury on this date was \$2,795,546. The state has no bonded debt. See CHILD LABOR; WORKMEN'S COMPENSATION; ZINC.

OFFICERS. Governor, Henry J. Allen; Lieutenant-Governor, L. J. Pettijohn; Secretary of State, C. H. Hoffman; Treasurer, Walter L. Payne; Auditor, Fred W. Knapp; Attorney-General, Richard J. Hopkins.

KANSAS, UNIVERSITY OF. A co-educational State institution, at Lawrence, Kan. The enrollment for the fall of 1919 was as follows: Graduate School, 53 men and 43 women; College of Liberal Arts and Sciences, 938 men and 1179 women; School of Engineering, 667 men and 7 women; School of Fine Arts, 32 men and 242 women; School of Law, 169 men and 3 women; School of Pharmacy, 38 men and 12 women; School of Medicine, 108 men and 35 women; School of Education, 24 men and 169 women; totals, minus reductions for names counted twice, 1869 men and 1443 women, a sum total of 3312. In the summer session there were enrolled 156 men and 284 women. The faculty numbers 292. The library contains 125,212 bound volumes. The university was founded in 1866. Chancellor, Frank Strong, Ph.D.

KANSAS WESLEYAN UNIVERSITY. An institution of learning under the auspices of the Methodist Episcopal Church, at Salina, Kan. The enrollment for the fall of 1919 was 276, and there were 18 members in the faculty. The library contains 12,500 volumes. In 1919 it was decided to build an Administration building, to cost \$250,000. The university was founded in 1886. President, L. B. Bowers.

KARAFUTO. The Japanese portion of the island of Sakhalin, comprising all of the island that lies south of the 50th parallel of north

latitude. Area, 13,048 square miles; population, estimated in 1917 at 68,207.

KATMAI NATIONAL MONUMENT. See VOLCANOES.

KEARNEY, EDWARD FRANCIS. Railway official, died at St. Louis, March 10. He was born at Logansport, Ind., March 28, 1865, and in his youth became a telegraph operator on the Pennsylvania lines. By 1905 he had become general superintendent of transportation on the St. Louis & Santa Fe Railway, and after 1915 was president of the Wabash.

KELLCOTT, WILLIAM ERSKINE. Biologist, died at Hastings, N. Y., January 29. He was born at Buffalo, N. Y., April 5, 1878; graduated at Ohio State University and was on the staff successively of Barnard College (Columbia University), Goucher College, and the College of the City of New York. In 1911, 1912, and 1914, he was instructor in embryology in the Marine Biological Laboratory. He was subsequently statistician in the United States Food Administration and resigned in July, 1918, after serving a year. An estimate of his work as a writer and a teacher will be found in the *Science*, April 4.

KENTUCKY. POPULATION. The population of the State in 1910 was 2,289,905, and on July 1, 1919, it was estimated to be 2,423,001, a gain of 14,000 during the twelvemonth.

AGRICULTURE. The following table is compiled from a report of the federal Department of Agriculture:

Crop	Year	Acreage	Prod. Bu.	Value
Corn	1919	3,300,000	82,500,000	\$127,875,000
	1918	3,500,000	91,000,000	132,860,000
Oats	1919	440,000	9,900,000	9,009,000
	1918	400,000	9,600,000	8,640,000
Wheat	1919	1,046,000	12,029,000	25,331,000
	1918	933,000	12,129,000	25,956,000
Tobacco	1919	550,000	456,500,000 a	174,383,000
	1918	490,000	470,400,000 a	123,715,000
Hay	1919	1,115,000	1,561,000 b	39,649,000
	1918	1,072,000	1,394,000 b	33,038,000
Potatoes	1919	72,000	5,040,000	10,584,000
	1918	75,000	5,625,000	9,281,000

a Pounds. b Tons.

TRANSPORTATION. The total mileage of single track in the State in 1919 was 4118; of this nearly 50 miles was constructed in the year.

CHARITIES AND CORRECTIONS. The following table shows the State institutions, subject to the Board of Control.

Reformatory	Frankfort
Penitentiary	Eddyville
Houses of Reform	Greendale
Eastern Hospital	Lexington
Central Hospital	Lakeland
Western Hospital	Hopkinsville
Feeble-Minded Institute	Frankfort

OFFICERS. Governor, Augustus O. Stanley; Lieutenant-Governor, James D. Black; Secretary of State, James P. Lewis; Treasurer, Sherman Goodpaster; Attorney-General, Charles H. Morris; Auditor, Robert L. Greene.

KENTUCKY, UNIVERSITY OF. A co-educational State institution, at Lexington, Ky. The enrollment in the summer of 1919 was 247; in the fall, 1056, while there were 114 members in the faculty. The gross revenue for the College Division was in the past year \$440,727; this does not include the Extension Division. The library contains 36,201 volumes. During

the year the university has remodelled the Administration Building, Neville Hall, and White Hall. It has built a live-stock judging pavilion and has in contemplation the erection of a memorial auditorium, and two dormitories. In 1919 the courses in economics, sociology, botany, zoölogy, music, art and agriculture have been enlarged. The institution was founded in 1866. President, Frank LeRond McVey, Ph.D., LL.D.

KENYON COLLEGE. An institution of learning conducted under the auspices of the Protestant Episcopal Church, at Gambier, Ohio. Enrollment, fall of 1919, 164; members of the faculty, 15. Funds for the year amounted to \$385,000 and the income was \$75,000. The library contains 35,000 volumes. During 1919 there was added to the staff, Dr. H. W. Wood as Chaplain, and Dr. D. S. Green, as Professor of Economics. It is planned to have a new athletic field in 1920. Kenyon College was founded in 1824. President, William F. Peirce, L.H.D., D.D.

KIAOCHOW. The name of a town, harbor and district on the east coast of the Chinese province of Shantung; before the war constituting a German protectorate and after Nov. 7, 1914 administered by Japan. Area, exclusive of the bay about 215 square miles; population according to German estimates before the war, about 195,000, but, including the neutral zone which comprises a strip along the coast about 30 miles deep with an area of 2500 square miles, the population was estimated at 1,200,000. By far the great majority of the inhabitants are Chinese. In 1915 the Japanese, exclusive of the military, numbered 9300. Tsingtao is the port and chief town. It is a free port for commercial purposes, but in 1919 was being turned into a fortified coaling station. Railways connect it with Tsinanfu and Ichow. No later statistics are available than those given in the preceding YEAR BOOKS. Kiaochow was seized by Germany in November, 1897 and on Mar. 6, 1898 it was transferred to her on a 99-year lease. Immediately after the outbreak of the war Japan demanded its surrender. Meeting with no response she declared war on August 3d, and began the blockade of Tsingtao August 27th, and on Nov. 7, 1914, along with British forces captured the town. The final disposition of Kiaochow was involved in the whole question of Shantung which was one of the subjects of bitter controversy at the Peace Conference and afterwards. See article WAR OF THE NATIONS.

KIDNEY, DISEASES OF. See BRIGHT'S DISEASE.

KIECKHEFER, FERDINAND A. W. Manufacturer, died in New York, March 26. He was one of the leading manufacturers of tin ware. He was born at Milwaukee, Feb. 10, 1852, and began his business life as a clerk. He started on his own account with a small shop in 1872 which grew to an establishment of importance and in 1899 was merged in the International Enameling and Stamping Co., of which he was president.

KINGSBURGH. See MACDONALD, Sir John H. A.

KLEIN, MANUEL. An American composer of light opera and ballet, died at Yonkers, June 1. He was born in London, Dec. 6, 1876. Having served as musical director for the Frohmans and Shuberts, he was connected in a similar capacity with the Hippodrome in New York, writing

the incidental music for a great variety of productions.

KOREA, or CHOSŌN. A country in eastern Asia, dependent on Japan after March 2, 1906, and formally annexed by Japan by the treaty of Aug. 22, 1910. Capital, Seoul.

AREA AND POPULATION. Area, 84,103 square miles. An official census was taken down to the end of 1918, which showed the total population at 17,057,032, an increase of 88,035 over the year ending 1917, and of 3,744,015 over the year ending 1910, when the country was annexed to Japan. The Japanese element at the end of 1919 numbered 336,872.

PRODUCTION, COMMERCE, ETC. No later statistics for production and commerce were available than those given in the preceding YEAR BOOK.

During 1919 government permission was granted for the construction of two broad gauge, light railway lines in North Chosen, for the exploitation of the forests along the Yalu and Tumen Rivers, and the development of the mining industry.

One line, the Chosen Forest Railway, was planned to operate from Hamheung, South Hamkyong Province, to Huchang, North Pyongan Province. The other railway, the Ryoko Takurin Tetaudo, was to consist of two lines, one running from Komusan and the other from Kilju, North Hamkyong Province, to Haisanchin.

The total length of these lines would exceed 200 miles and involve a capitalization of about \$12,500,000. The establishment of a paper mill at Hamheung was also contemplated.

FINANCE. The budget estimates for 1918-19 balanced at 64,502,512 yen.

HISTORY

THE MOVEMENT FOR INDEPENDENCE. The numerous adherents of national independence in Korea took advantage of the Peace Conference and the programme of President Wilson to press their claims upon the attention of the world. It was reported on February 28th that an Independence Committee formed by the Korean residents in China had presented a petition to the American minister asking the United States to intercede on behalf of Korea in the Peace Conference. For several months there was marked unrest in Korea although the Japanese authorities sternly put down any demonstrations on behalf of independence. Revolts broke out in March; several cities were scenes of mob violence; means of communication were cut; and public officials murdered. The riots assumed the form of a serious rebellion by the middle of April despite the increase of the Japanese military garrisons. In reply to offset the charges that the Koreans had been guilty of atrocities it was reported on March 31st by the Korean National Association that the Japanese were organizing massacres throughout the country. On the other hand Japanese officials declared that the trouble was due to the good nature of the government and that the mobs had increased their violence as the government had become more lenient; that partly as a result of this and partly through the effect of foreign propaganda the movement had become open rebellion. The Japanese privy council met at Tokio on May 15th and decided upon a modification of the plan for Korean government whereby civil government would replace military

and a larger measure of local self-government would go into effect as soon as the Koreans had abandoned their struggle for independence. Meanwhile the Independence party in Korea had organized early in March a provisional revolutionary government with headquarters in Manchuria and had proclaimed the independence of Korea. The constitution of the Korean Republic was issued on April 27th by this provisional government. This provided for a republican form of government, universal suffrage, equality of citizens before the law, freedom of speech, religious freedom and freedom of the press, compulsory education and military service, and at the same time it was asked that Korea be submitted to the League of Nations. During this time a message had been sent abroad concerning the Japanese atrocities. This was included in an appeal addressed to the American churches which brought a reply from Prime Minister Hara (July 10th) to the effect that the government was investigating these charges of crimes on the part of Japan and that it had been at work for some time past on plans for reforming the administration of Korea. It was announced in November that a Korean mission was on the way to Moscow to negotiate with the Soviet government and that the Koreans hoped to be supported by the Chinese.

KRAMARZH, DR. KAREL. Representative of Czecho-Slovakia at the Paris Peace Conference. He was at that time Prime Minister of Czecho-Slovakia. He had been for many years a leader of the young Czech party in the Austrian Parliament where he led the Czech opposition, attacking the Austro-German alliance and the triple alliance. He was hated by the Austrian Germans as one of their chief foes. He was a leader in the neo-Slav movement, and was a strong partisan of Russia. In the war he was arrested and condemned to death by an Austrian court, but was reprieved and set free. His whole career was devoted to the cause of Bohemian liberty.

KREISLER, FRITZ. See *MUSIC, Artists, Instrumentalists.*

KUNZE, RICHARD ERNEST. Physician and naturalist, died at Phoenix, Ariz., February 10. He was born at Altenburg, Saxony, April 7, 1838, but came to the United States and studied medicine in New York where he practiced until he moved to Arizona in 1896. He made studies of medical botany and insect life in Arizona and was one of the originators of the Arizona cactus farm. He was president of the New York Therapeutical Association.

KURDISTAN. A tract of country to the southeast of Armenia lying for the most part within the limits of the former Turkish empire but partly also in Persia. Area, estimated at 74,000 square miles; population about 3,000,000, of whom some four-fifths are Kurds, a nomadic Mohammedan people celebrated for their plundering and murdering forays among the Armenian Christians. In the Turkish empire, Kurdistan was included in the vilayet or province of Armenia and Kurdistan.

KÜSTENLAND. See *COASTLAND.*

KWANGCHOW-WAN. A small territory on the coast of the Chinese province of Kwangtung, obtained by the French from China on a 99-year lease in 1898. Area, including two islands acquired by France in 1899, about 190 square miles; population about 168,000. It is

administered under the authority of the government-general of Indo-China and for administrative purposes is divided into three districts; the Chinese organization is retained in the commune.

KWANGTUNG or KWANTO. A territory in the southern part of the Liaotung Peninsula, leased by Japan from China. Area, 538 square miles; population (Dec. 31, 1917), 572,525, of whom 55,833 were Japanese and the rest Chinese. The chief crops are corn, millet, beans, wheat, rice, buckwheat, hemp, and various vegetables, and the chief manufactured product is marine salt. Imports (1917), 148,929,309 yen; exports, 149,412,033 yen. The budget estimates for 1918-19 balanced at 4,553,374 yen. The seat of administration is at Dairen, formerly known as Dalny, which has an excellent harbor free from ice the year round and is connected by railway with Mukden, Kharbin and the eastern Chinese railway system.

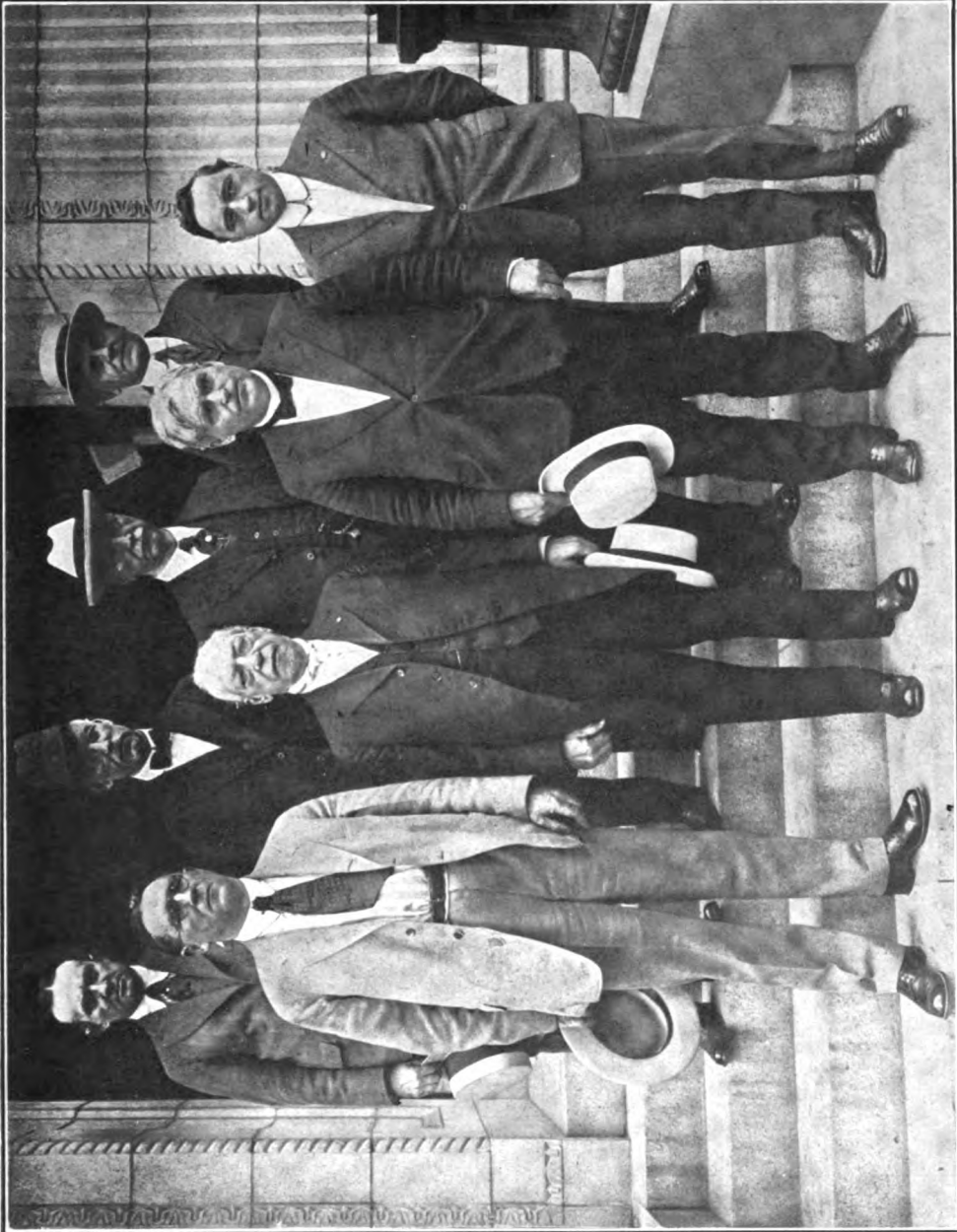
LABOR. See *ARBITRATION AND CONCILIATION; CHILD LABOR; COÖPERATION; I. W. W.; JUVENILE COURTS; LABOR, AMERICAN FEDERATION OF; LABOR LEGISLATION; MINIMUM WAGE; INDUSTRIAL RECONSTRUCTION; NATIONAL WAR LABOR BOARD; OLD AGE PENSIONS; SOCIAL INSURANCE; STRIKES AND LOCKOUTS; TRADE UNIONS; UNEMPLOYMENT; WAR LABOR POLICIES BOARD; WOMEN IN INDUSTRY; WORKMEN'S COMPENSATION.*

LABOR, AMERICAN FEDERATION OF. Organized labor has just completed the most notable year in its existence. The recognition of the trade-union movement by the government through the National War Labor Board and its other conciliatory boards, stimulated organization amongst the workers. The rapidly increasing cost of living also made it imperative for labor to organize for its own protection. The American Federation of Labor, organized in 1881, is the largest and strongest labor organization in this country. For the part which it has played in strikes, and also in the acquiring of a means of settling labor disputes, see *STRIKES AND LOCKOUTS; ARBITRATION AND CONCILIATION.*

CONVENTION. The 39th annual convention of the American Federation of Labor met at Atlantic City, N. J., on June 9th and remained in session until June 23d.

The secretary's report showed that during the year ending April 30th, a total of 555 charters were issued to national and international, state central, local trade, and federal labor unions; and that charters were revoked or surrendered, and unions disbanded, suspended, or amalgamated in 471 instances. The reports of international and national organizations stated that they issued during the year 6473 charters; and that 1719 lapsed or were surrendered. The gain in individual membership as reported by the secretaries of 66 international organizations, was 826,449. Reports from a like number of internationals show a total of 1515 strikes, in which 234,446 workers were directly involved. The total cost of these controversies to the internationals involved was \$1,391,833.30. In addition, \$82,547.18 was donated by unions for financial aid to unions on strike.

According to the report of the convention, the total membership of all unions affiliated with the American Federation of Labor increased during the year to 3,260,068, as compared with 2,726,478 in 1918. There were, on April 30th,



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LABOR LEADERS

Samuel Gompers and Leaders of the American Federation of Labor at the Washington Conference

111 national and international unions, 884 local trade and federal labor unions, 816 city central bodies, 572 local department councils, 46 State federations, and (included in the above figures) 33,852 local unions affiliated with the American Federation of Labor. These bodies were represented at the convention, as well as the British Trades Union Congress, Canadian Trades and Labor Congress, and the Workmen's Friendly Society of Japan.

Among the important resolutions adopted by the convention were: Recommendation for the establishment of a permanent United States Employment Service; demand for the recognition of the right to bargain collectively through trade unions; the extension of the civil service; support of the government action in scientific and technical research, and urging the extension of the same; self-determination for Ireland; adoption of the "Plum plan" for the administration of railroads; endorsement of the League of Nations covenant, and the draft convention of the International Labor Conference.

The officers elected for the ensuing year were: President, Samuel Gompers; first vice-president, James Duncan; second vice-president, Joseph F. Valentine; third vice-president, Frank Duffy; fourth vice-president, William Green; fifth vice-president, William B. Mahon; sixth vice-president, Thomas A. Rickert; seventh vice-president, Jacob Fischer; eighth vice-president, Matthew Woll; secretary, Frank Morrison; treasurer, Daniel J. Tobin.

RECONSTRUCTION PROGRAMME. On January 4th, the American Federation of Labor Reconstruction Programme was submitted to the Senate Committee on Education and Labor in connection with the hearings conducted with regard to S. Res. 382, directing the committee "to investigate and recommend to the Senate methods of promoting better social and industrial conditions in the country." The programme was drafted by a committee on reconstruction headed by John P. Frey, and appointed by instruction of the conference of the American Federation of Labor held at St. Paul in 1918. This report was endorsed by the Executive Council of the Federation. Its important demands are as follows: Reduction of employment by increasing wages; that women should be paid an equal wage with men; the prohibition of child labor; that the right of public employees to organize and bargain collectively be recognized; the development of coöperative agencies; that the reenactment by the Legislature of bills declared unconstitutional shall not be subject to further judicial annulment; a non-partisan political policy of labor; government ownership of public and semi-public utilities; federal regulation of corporations; adequate workmen's compensation; regulation of land ownership; development of waterways and government administration of waterways and water power; development of education; freedom of expression and association; prohibition of immigration for two years; removal of all private employment agencies; and a substantial reward for veterans of the World War.

INTERNATIONAL RELATIONS. Immediately upon the signing of the armistice, the Executive Council of the American Federation of Labor met in San Antonio, Texas, and took up the question of an international conference of representatives of organized labor. This action was

in compliance with the instructions of the St. Paul convention to call an international congress of representatives of labor movements of all nations at the same time and place as the Peace Conference. A delegation to represent the American Federation of Labor was elected, consisting of Samuel Gompers, and vice-presidents Duncan, Alpine, Duffy, and Green.

Upon the arrival of this mission in Europe, and the refusal of President Gompers to take part in the Berne or Leeds programme as offered by the other nations, President Gompers was appointed as the American representative of labor on the Commission for International Labor Legislation, created by the Peace Conference. Upon the organization of this commission, Gompers was unanimously elected president. Constantly advising with him throughout the protracted sessions of the Commission, were the other members of the American Labor Mission. The principles as advocated by the American Federation of Labor in the settlement of the peace were: (1) formation of a league of free peoples for international coöperation; (2) no political or economic restrictions between nations; (3) no indemnities or reprisals based on vindictive purposes; (4) recognition of the right of "self-determination"; (5) no territorial changes or adjustment of power save for the actual welfare of the people affected or the furthering of world peace. To these principles were added as essential features of the treaty of peace: (1) restriction of child-labor on goods shipped in international commerce; (2) a basic eight-hour day; (3) no involuntary servitude, save for penal offenses; (4) recognition of right of trial by jury. The first five principles were recognized by the Peace Conference, and two of the four labor planks were included in the treaty.

AMERICAN FEDERATION OF TEACHERS. Organized in 1916, in which year it was affiliated with the American Federation of Labor, this federation has increased to a membership of 8000 in 90 local unions. The greatest activity in the organization has manifested itself since January 1st. Especially strong unions are found in Washington, D. C., Sacramento, San Francisco, Chicago, Memphis. Among colleges, the most noteworthy are Howard University, Washington, D. C., the University of Illinois, and the College of the City of New York. The officers are: President, Charles B. Stillman; secretary-treasurer, F. G. Stecher; national organizer and first vice-president, L. V. Lampson, Washington, D. C.

A report upon labor's educational programme was presented to the convention of the American Federation of Labor in Atlantic City, and was adopted as a statement of the educational policy of organized labor. Provisions especially worthy of note include: Extension of industrial and vocational courses, smaller classes and better conditions, consideration of the adoption of the metric system, more open and free discussion, and the recognition of the right of teachers to be represented in the determination of educational policy.

LABOR LEGISLATION. The year 1919 witnessed a new and extremely interesting development in the field of labor legislation. From October 29th to November 29th, in Washington, D. C., there met a convention made up of delegates from 41 countries, representing not only the governments but also the principal organizations of both employers and employees

in those countries. This convention was called under the provisions of The Treaty of Peace by invitation of the United States. Because of the failure of the United States Senate to ratify the Treaty, this country could not officially participate in the work of the conference, which attempted to draw up world-wide minimum standards for the protection of labor. Its "draft conventions and recommendations" are discussed under the heading of INDUSTRIAL RECONSTRUCTION.

In addition to the summary given below, certain topics which belong under the heading of Labor Legislation have been handled separately and may be found under their specific headings in this volume. See CHILD LABOR, MINIMUM WAGE, OLD AGE PENSIONS, SOCIAL INSURANCE, WOMEN IN INDUSTRY, and WORKMEN'S COMPENSATION. A complete summary of labor legislation passed in the United States during 1919, is given in *The American Labor Legislation Review*, vol. ix, No. 4, December, 1919, and it is from this report that the present article, in-so-far as it treats of United States legislation, has been adapted.

The United States:

The most important congressional action of the year affecting labor, was the passage by both Houses of Congress of bills providing for the vocational rehabilitation of industrial cripples. This legislation, when finally enacted after technical differences between the two Houses have been adjusted, will open the way to co-operative action by all States. Eight of these, in addition to Massachusetts where beginnings were made a year earlier, authorized aid in re-educating and finding employment for industrial cripples. Congress also reenacted, under the federal taxing power, the child labor regulations which had been declared unconstitutional as an exercise of authority over interstate commerce.

Miscellaneous Legislation:

Congress authorized the President to convene the International Labor Conference provided for in the Treaty of Peace with Germany. Eight States provided for special State commissions to investigate or deal with industrial matters. These include reconstruction commissions (Delaware, North Carolina, Wisconsin, Wyoming), an industrial code commission (Washington), a negro industrial commission (Missouri), and an industrial relations commission (Michigan). Massachusetts enacted legislation making it permissible for corporations to provide for the election of employee representatives to their boards of directors.

Individual Bargaining:

More than a dozen states amended or enacted laws dealing with wage payments, including provisions for the payment of wages weekly (Connecticut), semi-monthly (Colorado, Georgia, Missouri, Montana, Nevada, South Dakota, Wyoming), monthly (California), or on discharge (California, Kansas, Minnesota, Nevada, Oregon, South Carolina, Utah); payment in a negotiable medium (Georgia, Montana, Nevada, New Jersey, Utah); and the collection by law of unpaid wages (California, Oregon, Wyoming). Assignment of wages was regulated by Arizona and Connecticut, and garnishment further regu-

lated by New York and Porto Rico. Washington dealt with seasonal labor contracts, laying down rules as to their form and enforcement. Arizona, Nevada, and Oregon discriminated against employment of aliens on public work. Montana provided for periodical reports on alien employees, while Minnesota recommended to Congress a character test for immigrants, and Tennessee urged Congress to pass the Burnett immigration bill. Illinois required weighmen in coal mines to be citizens. Porto Rico took steps to protect emigrant laborers. Statutes protecting wages by lien, bond, or the like, were passed or modified in nine States. Legislation tending to enforce the performance of labor contracted for was adopted in four States—California, Florida, North Carolina, and Oregon—while Colorado took steps to enforce the act against securing labor under false pretenses.

Collective Bargaining:

Trade Unions were legalized, and the use of injunctions limited in Iowa, North Dakota, Oregon, Washington, and Wisconsin. Michigan provided for the incorporation of labor unions, and North Dakota required the union label on all State printing. Mediation and investigation of trade disputes were dealt with in Nebraska, Oregon, and Porto Rico, while Montana asked that copper strike leaders be brought to justice. About a dozen States joined those which define and penalize "criminal syndicalism." Money appropriated for the United States Department of Justice, Congress declared, should not be used to prosecute trade unions for any legitimate activities.

Hours of Labor:

Seven States enacted or amended laws establishing the eight-hour day for various public employees, and three States regulated periods of duty for fire fighters. Annual vacations for public employees were established or extended in two States. In a number of States the hours of employment for women and children were regulated. (See WOMEN IN INDUSTRY and CHILD LABOR.) North Dakota joined the 14 States and Alaska which have adopted an eight-hour day for mine workers. Wisconsin adopted a one-day-rest-in-seven law for factories and mercantile establishments, while Michigan is the first State to attempt a similar standard for transportation, prohibiting employment for more than six days out of any seven for interurban motor-men and conductors. Holidays for day laborers in the District of Columbia were safeguarded by Congress, and Porto Rico regulated the length of working spells. Michigan submits to the people a constitutional amendment allowing the legislature to regulate hours and working conditions for men, women, and children.

Employment:

Private employment agencies were regulated in four western States, California extended its law to cover private schools which charge fees for placing their students, and North Carolina levied a heavy tax on persons engaging labor for use outside the State. Wisconsin authorized its industrial commission to withhold the license for a private agency if the public office in the city was sufficient. Public employment office systems were reorganized or extended in half a dozen States, including the

establishment in Indiana of a commission not only to operate the offices, but to study the whole question of unemployment. Wisconsin requires cities to cooperate with the industrial commission by furnishing quarters, light, janitor service, and other necessities for State employment bureaus. Special provisions for replacing discharged soldiers and sailors were made in half a dozen States. New York empowered cities to open industrial aid bureaus of their own and to provide shelter, food, and clothing to residents while employment is being found for them. Continued cooperation with the Federal Employment Service was acted on in seven States, including petitions to Congress from Montana, Oregon and Utah to continue the service. Congress made appropriations totaling \$672,000 for maintaining the service. Certain States provided for the starting of public work to meet the unemployment crisis (q.v.), Oregon proposing a special issue of "reconstruction bonds" for the purpose, and urging Congress to create a Federal Board to encourage public works in times of industrial slackness. "Job selling" was prohibited in Michigan and Utah. California created a commission to study unemployment and recommend legislation against it, and Oregon asked Congress for action to relieve the situation caused by the return of war veterans. The latter State also petitions Congress on developing the Pacific shipbuilding industry to prevent lack of work.

Safety and Health:

California empowered the industrial accident commission to forbid the use of unguarded machinery or unsafe workplaces. Provisions for shower baths, wash rooms, drinking fountains, and the like, were adopted or amended in six States, and likewise rules for fire protection in four States. Connecticut required employers to furnish devices for threading shuttles to avoid use of the operative's lips or mouth (a practice which has played a great part in the spread of tuberculosis), and Indiana required gas masks in workplaces where dangerous fumes are present. Removal of coke fumes was ordered in Ohio, which also adopted a factory lighting code. Existing factory and mercantile establishment inspection statutes were extended in half a dozen States, and Nevada enacted a general shop safety law. Minnesota and Missouri strengthened their accident reporting laws. About a dozen States amended their mine inspection statutes or provided for mine rescue work. Michigan and Ohio dealt with warming vestibules and the height of couplers on interurban lines, while North Dakota enacted a railroad full crew law and required shelters for repair work. Bunks, baths, and other conveniences were provided for labor camps in California, six States provided for safe construction, maintenance, and operation of boilers, and five States established safety standards for building construction. Electrical installation was regulated in Oregon.

Administration:

A score of States markedly increased the appropriations for their labor departments, workmen's compensation commissions, and other bodies administering labor laws. In more than a dozen States salaries of labor commissioners, deputies, or inspectors were raised, and some

modifications in the civil service rules were adopted. Four States, notably New York, enlarged their factory or mine inspection staffs, while three States established mine inspection bureaus, and Massachusetts, Nebraska, Rhode Island, and Tennessee reorganized their labor departments. Alaska established the office of labor commissioner. Women's bureaus were added to the labor departments of New York and Texas. California empowered its industrial welfare commission to issue subpoenas and administer oaths, and Minnesota authorized inspectors to enter factory offices as well as work rooms. Utah transferred the administration of child labor laws from the courts to the Industrial Commission, and in Wisconsin the industrial commission was directed to codify the labor law and its general orders.

In all, 43 States and territories held regular, and some 20 held special legislative sessions in 1919, while the Sixty-sixth Congress was also in session.

Court Decisions:

Of chief interest among decisions handed down by the courts during the year that bear directly on labor matters, was the verdict published by Circuit Court of Appeals, Eighth Circuit, on April 28th. The decision established the liability of the United Mine Workers of America for destructive acts committed by members of that union in 1914, in the Prairie Creek district of Arkansas. The case was known as *United Mine Workers of America et al. v. Coronado Coal Company et al.* and was the continuation of a case entitled *Dowd v. United Mine Workers of America* which was before the court in 1916.

The court decided that the union and its branches were responsible for damages to the extent of \$200,000, and since the proceedings were brought under the Sherman Anti-trust Law this judgment was trebled. The decision had been appealed to the Supreme Court. The case carries peculiar interest in view of the fact that the United Mine Workers of America and the 28 local unions connected with it are all unincorporated, and because it establishes the opposite point to that made in the well known *Danbury Hatters' Case*, where individuals were held liable for acts of the union.

Foreign: The Eight-Hour Day Abroad:

By far the most important and interesting of the labor legislation of foreign countries for 1919, is the remarkable progress attained in the establishment of the eight-hour day and the 48-hour week. In some countries it has been established by statute and in others through trade agreements, but the growth of the movement leaves no doubt that it will soon be a recognized part of labor programmes in all industrial countries. From Belgium come reports of trade agreements adopting the eight-hour day, 48-hour week in the iron and steel industries, and a 44-hour week in the Antwerp diamond industries. A provision of the French Labor Code of April 23d reads: "The effective working time of workpeople or employees of either sex and of any age, shall not exceed eight hours per day nor 48 hours per week, or an equivalent limitation based upon a period of time other than a week, in industrial or commercial establishments, or in business premises of any kind connected with them, whatever their na-

ture, whether public or private, secular or religious, even when they are of a technical or philanthropic nature. . . . In no case shall the reduction of the hours of labor serve as a determining reason for a reduction of wages. . . ." A second law, dated August 2d, extended the eight-hour day, 48-hour week principle to all persons of either sex employed on French sea-going vessels, public or private. Denmark, by a law dated February 12th, limited the working day to eight hours in factories where work is carried on night and day; and the same limit was established by trade agreements for all industrial workers, effective Jan. 1, 1920. An eight-hour working day was ordered for all industrial workers in Germany by the German Demobilization Department on Nov. 23, 1918. In Italy trade agreements were signed in February, establishing the 48-hour week in the metal, engineering, shipbuilding, and allied trades (representing some 500,000 workers); on April 4th the same agreement was reached for workers of both sexes in agricultural trades, with provision for overtime at certain seasons of the year to be paid for at higher rates; the eight-hour day and 48-hour week were agreed upon in the sugar-refining and spirits industries on May 2d; in the Milan clothing trades and for gas-works employees on May 1st; and on June 15th a government decree similarly limited the hours of employees on State railroads. An official decree of May 14th in Portugal, established the eight-hour day and 48-hour week for all work-people and employees of State and administrative bodies (agriculture workers, domestic servants, waiters, and hotel and restaurant workers excluded). It provided that dangerous and unhealthy trades might be still further limited by special decree; thus for clerks in banks, exchanges, and offices the maximum working day is fixed at seven hours. The *Canadian Labor Gazette* of April 19th, reports that the Government of Peru has decreed that the eight-hour day shall be standard in all trades and industrial organizations. Spain, by Royal Decree of April 3d, declared the maximum legal working day throughout Spain to be eight hours (48-hour week) for all laborers effective Oct. 1, 1919. A second decree was issued on August 21st, strengthening the former order. Sweden adopted the eight-hour day, 48-hour week as effective on Jan. 1, 1920; the law provided that the limit might be extended to eight and one-half hours for the first five days of the week if the weekly limit was not exceeded, and applied to every establishment, industrial or otherwise, in which more than four work-people are usually employed, and to all establishments in towns of over 1500 population (number of exceptions listed in commercial field). This law remains in effect until 1923. Switzerland established the 48-hour week for factory workers by law of June 27th; it provides that the limit may be extended to 52 hours per week in certain industries that are most affected by foreign competition, and that it may be reduced in dangerous and unhealthy trades.

Miscellaneous:

FRANCE. The subject of collective bargaining receives full and definitive treatment in a codification of rules and principles published by the French government on Mar. 25, 1919. A collective labor agreement is defined as a contract

relative to conditions of labor, made between the representatives of a trade union or any group of employees, on the one side, and the representatives of a trade organization or of any other group of employers, or several employers contracting under a single title, or a single employer, on the other side. This agreement sets forth the obligations assumed by either party toward the other or toward third parties. Agreements are held to be valid for a period not exceeding five years. When agreements are for an indefinite period, either party may withdraw upon one month's notice. Provisions for public registration of all agreements and the withdrawal of an individual from either party are carefully defined. Suits for violation of agreement may be brought by any party or group (legally capable of bringing suit) against any other party or group in the agreement, and all interested parties may participate in such suits. Collective agreements in force before promulgation of the law remain in force.

GERMANY. According to "Sociale Praxis," Herr Landsberg, the German Minister of Justice, on March 1st, announced to the National Assembly that the government was to prepare a German Labor Code which would fulfill all demands on which organized workers had come to an agreement. Certain provisions were enumerated: 1. Right of combination secured to workers; 2. The legal competence of trade unions established; 3. Improvement of laws on conciliation and arbitration guaranteed, with the establishment of shop councils, which are to have an important voice in problems concerning production. Workers and employers associations, the Minister stated, would be consulted before definite action was taken.

CANADA. The Industrial Conditions Act of Manitoba, in effect March 29th, establishes a joint council—subject to statutory control—for settlement of industrial disputes. The council, consisting of two representatives each for employers and employees, and a chairman representing the public, is empowered to investigate and report on disputes at the request of either party or voluntarily, and to hold public hearings on all cases; it may also report on cost of living, profiteering, and make general studies of labor problems. The council has the power of court, with authority to call witnesses and punish for contempt. The *Canadian Official Record* for July 17th gives a summary of the principal acts passed at the session of the Dominion Legislature which adjourned July 7, 1919. Briefly they provide: 1. The Soldiers' Settlement Act extends to soldiers financial benefits up to \$7500 each; provides for loans, medical service for disabled men, and procuring of employment; 2. A Board of Commerce is created to cope with the high cost of living and to administer the Combines and Fair Prices Act of 1919. The *Canadian Labour Gazette* for June gives the provincial laws for Alberta, British Columbia and Ontario; all three provinces amended their workmen's compensation laws, regulated private employment agencies, and established public employment services. Alberta established minimum wage boards in towns over 5000; British Columbia applied minimum wage law to miners; Ontario provided for a department of labor, established minimum wage for minors under 18 years of age, passed a law prohibiting employment for women and girls under-

ground, legislated against sweat-shops, and provided for compulsory school attendance for full or part time to 16 years, and part time (with special exceptions) to 18 years.

LABOR LEGISLATION, AMERICAN ASSOCIATION FOR. This branch of the International Association for Labor Legislation maintains offices at 131 East 23d Street, New York City. Mr. John B. Andrews is its secretary. This organization collects data on labor legislation, conducts propaganda for the passage of desirable legislation, and issues a quarterly, *The American Labor Legislation Review*. See OCCUPATIONAL DISEASES.

LABRADOR. The peninsula in British America between the Atlantic and Hudson Bay. It lies within the province of Quebec with the exception of a strip along the northeast coast which is a dependent of Newfoundland.

LABUAN. A small island off the northwest coast of Borneo under the administration of Singapore in the Straits Settlement (q.v.).

LAFAYETTE COLLEGE. An institution for the education of men, at Easton, Pa. Conducted under the auspices of the Presbyterian Church. The enrollment in the fall of 1919 was as follows: Graduates, 11; undergraduates, 695. The faculty numbers 48. The permanent endowment amounts to \$961,988, and the income for the year was \$173,990. The library contains 60,000 volumes. Lafayette was founded in 1826. President, John Henry MacCracken, Ph.D., LL.D.

LAKING, Sir GUY FRANCIS. Art expert, died in London, England, November 22. He was born Oct. 21, 1875, and studied drawing at the Architectural Museum, Westminster, but soon joined a well-known firm of art dealers and became an authority on art subjects. Besides many articles for magazines, he wrote books on the armory and furniture at Windsor Castle and the porcelains of Buckingham Palace.

LAMB, EDWIN TRAVIS. Railway president, died at Birmingham, Ala., November 10. He was born at Richmond, Va., June 29, 1863, and began his business career as receiving clerk on the Chesapeake & Ohio Railway. He rose rapidly in the service of several Southern railways and steamship companies in succession and was president and general manager of the Norfolk & Southern, 1910-12. In the latter year he became general manager of the Atlanta, Birmingham & Atlantic Railway and was afterwards its president.

LAMY, ETIENNE. French publicist and historian, died January 9. He was born at Cize in Jura in 1845 and studied in a college of the Dominicans. In 1870 he became a doctor of law. During the early part of his life he was actively interested in politics and was a member of the National Assembly in 1871. He was an ardent Republican and voted with the Left, but being a strong Catholic he was opposed to the policy of the Ferry ministry in the higher education, and became a clerical reactionary. In the election of 1881 he was defeated and from that time on devoted himself mainly to literary work. In 1892 he was elected president of the League for Public Liberty and he was regarded by the Republican Catholics as their leading representative. In 1905 he was elected to the Academy and a few years later became its perpetual secretary. He took for his motto, "For the service of ideas and letters," and his writings were marked by great industry and by a spirit of sincerity. They covered history in its widest

scope including political, civil, religious, military, and naval institutions; the development of literature and art, etc. Among his writings may be mentioned: *Le tiers parti* (1868); *L'Armée et la démocratie* (1889); *La France du Levant*, (1898); *Etudes sur le second empire* (1895); *La femme de demain* (1899); an edition of the memoirs of Aimée de Coigny (1900); *Témoins de jours passés* (1909, 1913); *Au service des idées et des lettres* (1909); *Quelques œuvres et quelques ouvriers* (1910, 1913).

LAND RECLAMATION. See AGRICULTURE, and RECLAMATION.

LANDS, PUBLIC. According to a statement made in the annual report of Secretary of the Interior Lane, the total area of public and Indian lands originally entered and allowed during the fiscal year ending June 30, 1919, was 11,863,672.28 acres, not including 137,403.27 acres embraced in finals not previously counted as original dispositions of land. The latter area was constituted as follows: Public auction, 104,721.15 acres; abandoned military reservations, 7509.29 acres; cash and private sales, individual claimants, and small-holding claims, 14,090.26 acres; preemption entries, 86.26 acres; and soldiers' additional homesteads, 10,996.31 acres. The area of 11,863,672.28 acres signified an increase of 1,889,340.67 acres, as compared with the area originally entered and allowed during the fiscal year 1918. This increase in allowed entries was attributed to the stock-raising homestead act of Dec. 29, 1916, 5,559,235.11 acres having been allowed under that act.

The area patented during the fiscal year was 10,777,001.349 acres, an increase of 1,224,519.132 acres, as compared with the fiscal year 1918. Of that area, 8,312,318.888 acres were patented under the homestead laws, an increase of 1,819,521.072 acres, not including as homesteads 13,334.12 acres patented as soldiers' additional entries.

The total cash receipts from the sales of public lands, including fees and commissions, \$1,194,472.10, sales of reclamation town sites, \$43,863.86, and sales of lands in the Oregon & California Railroad grant, \$114,008.32, for the fiscal year 1919 were \$2,817,063.27. The total receipts from the sales of Indian lands were \$1,387,781.74. Other receipts aggregated \$98,829.19. The total receipts of the Land Office Bureau during the fiscal year 1919 were \$4,303,674.20.

LANESSAN, JEAN MARIE ANTOINE DE. French naturalist and politician, died November 9. He was born in the Gironde on July 13, 1843, and studied medicine and natural sciences. He served as a physician in the navy during several years, and visited most of the French colonial possessions. After that he devoted himself to medical investigation and to the study of natural sciences, and published a number of works in those fields that were highly regarded. In 1879 he entered upon a political career first becoming a member of the municipal council in Paris, and later (1881) being elected to the Chamber of Deputies. He was a specialist in colonial questions, having brought to them a vast amount of personal experience. He was governor of Indo-China, 1891-94, and Minister of the Navy in the cabinet of Waldeck-Rousseau, 1899-1902. He was editor of *Le Reveil*, 1881-82, and the political director of the *Siècle*. His writings include: *Du protoplasme végétal* (1876); *Manuel d'histoire naturelle médicale* (1879-81); *Etudes sur*

la doctrine de Darwin (1881); *Traité de zoologie and Protozoaires* (1882); *La botanique* (1882); *Le transformisme* (1883); *Flore de Paris* (1884); *Introduction à la botanique and Le sapin* (1885); *La Tunisie* (1887); *L'Expansion coloniale de la France* (1888); *L'Indo-Chine française* (1889); *La colonisation française en Indo-Chine* (1895); *Principes de colonisation* (1897); *La lutte pour l'existence et l'évolution des sociétés* (1903); *La morale des religions* (1905); *L'Etat et les églises en France depuis les origines jusqu'à la séparation* (1906); *Les missions et leur protectorat* (1907); *La morale naturelle* (1908; new ed., 1912); *Le bilan de notre marine* (1909); *La lutte contre le crime* (1910); *Nos forces navales* (1911); *Nos forces militaires* (1913).

LANSING, ROBERT. American representative at the Paris Peace Conference. He was Secretary of State in President Wilson's cabinet. Before he was prominent in politics he was well known as a lawyer, his specialty being international affairs. He often represented the government in international disputes, as for example, in the Behring Sea arbitration, and on Behring Sea claims' commission, and in the North Atlantic fisheries' arbitration. He was the United States agent in the Anglo American Claims' Arbitration, 1912-14. In the spring of 1915 he succeeded Mr. Bryan as Secretary of State. It was generally understood that President Wilson initiated his own policy in foreign affairs, but the Peace Conference threw much responsibility upon Mr. Lansing whose long experience and intimate knowledge of American diplomacy were invaluable.

LANSING, MICHIGAN. See GARBAGE.

LAOS. See FRENCH INDO-CHINA.

LAURIER, Sir WILFRID. Canadian statesman, died at Ottawa, February 17. He was perhaps the best known Canadian leader of the day. He was born at Saint Lin in the province of Quebec, Nov. 20, 1841; was educated in the parish school and at McGill University; studied law and was admitted to the bar in 1864. In 1871 he was elected to the Legislature of Quebec and from the first urged the native population to rouse themselves and enter into active industrial competition with the English element. He resigned his seat in 1874 and was returned to the federal Parliament where he supported the MacKenzie administration. At this time he was in favor of moderate protection for the purpose of stimulating the industries of the country. In 1877 he became a member of Parliament as Minister of Inland Revenue, but the government was defeated in the following year, and from that time he did not hold a cabinet position until he became Prime Minister in 1896. During the long period of Conservative success he was recognized as leader of the Liberal party in opposition. The party under his leadership declared for unrestricted reciprocity with the

United States and in some of his speeches in the 1880's Laurier went so far as to suggest separation from Great Britain. In the general election of 1896 the Liberal party had a large majority. The tariff was thereupon modified, and the feature of British preference was introduced. In 1897 he visited England where he was received with high distinction. In 1898 the negotiations with Washington over the Alaskan boundary took place, and his government loyally accepted the result. During the South African war, though at first hesitating to send contingents, he finally decided to do so, and supported the British cause with energy. In the subsequent election his government was defeated in Ontario, but not in Quebec. The main measures of his administration were the National Transcontinental Railway, the creation of the Dominion Railway Commission, the introduction of the competitive system in Civil Service, and several progressive labor measures. In recent years his controversy over the naval programme and reciprocity with the United States brought him into especial prominence, and he was defeated on these issues. During the great war he supported loyally the generous policy of the government in the matter of contingents for the Allies, and did his best to conciliate the French-Canadian element.

LAW, A. BONAR. Representative of Great Britain at the Paris Peace Conference. He was born in Canada in 1859, went to Glasgow, Scotland, where he became a successful iron merchant, and gained a reputation for first hand knowledge of commercial affairs. He distinguished himself by his ability in debate and within 11 years after entering Parliament became leader of the opposition, and five years after that leader of the House, when Mr. Balfour retired. He observed the party truce which was declared when the war broke out, and in the coalition government he was appointed Colonial Secretary. In Lloyd George's ministry he became at the end of 1916 Chancellor of the Exchequer. As such he was a member of the war cabinet, and at the same time he remained leader of the House of Commons. He secured the passage of the two largest budgets in the history of the country. After the general election of 1918 he ceased to be Chancellor of the Exchequer, and became Lord Privy Seal.

LAWN TENNIS. See TENNIS.

LEAD. The statistics of lead production in the United States for 1919, according to refinery statistics given below, as reported in the annual review of the *Engineering and Mining Journal* (New York), showed extraordinary decreases in all directions. The general depression in the business in the early part of the year and the intentional curtailment of production to adjust the latter to the demand and prevent stocks from accumulating were in large measure responsible for the decrease.

PRODUCTION OF LEAD (REFINERY STATISTICS) (a)
(In tons of 2000 lbs.)

	1915	1916	1917	1918	1919
Domestic:					
Desilverized	305,160	330,189	319,015	284,733	226,085
Antimonial	24,601	22,819	16,265	18,658	14,861
S. E. Missouri	185,849	206,105	205,861	189,207	158,182
S. W. Missouri	20,312	33,128	40,575	63,635	55,790
Totals	535,922	592,241	581,716	556,233	454,921

Foreign:	1915	1916	1917	1918	1919
Desilverized	43,301	17,832	50,962	98,596	61,380
Antimonial	2,883	3,304	2,991	2,083	1,547
Totals	46,184	21,136	53,953	100,679	62,927
Grand totals	582,106	613,377	685,669	656,912	517,848

(a) These figures include the lead derived from scrap and junk by primary smelters.

The output of soft lead by mines of the Mississippi Valley and Eastern States was about 217,000 short tons, and that of argentiferous lead by mines of the Western States was about 208,000 tons, a total of 425,000 tons, compared to 267,184 tons and 314,470 tons, respectively, a total of 581,654 tons, in 1918 and to 273,095 tons and 377,854 tons, respectively, and a total of 650,949 tons in 1917, a decrease of over 156,000 tons in 1919, as compared with a decrease of 69,295 tons in 1918. The southeastern Missouri district made the largest production, 153,500 tons, and the Coeur d'Alene district of Idaho was next, with 86,000 tons. The imports of lead in ore and bullion were about 63,000 tons, as compared with 93,367 tons in 1918.

The average price of lead at New York in 1919 was 5.8 cents a pound, as compared with an average of 7.1 cents in 1918. At the beginning of 1919 lead was quoted at 5.75 cents, but it went slightly below 5 cents in April and May, after which it steadily climbed until the close of the year, when it was quoted at about 7.5 cents. This advance in price, despite the falling off of exports and the cessation of shipments to the American forces abroad would seem to indicate that the production has been nicely adjusted to the needs of the domestic building programme.

LEAD, RADIOACTIVE. See **CHEMISTRY, GENERAL PROGRESS OF.**

LEAGUE OF NATIONS. See **WAR OF THE NATIONS and INTERNATIONAL PEACE and ARBITRATION.**

LEATHER. During 1919 the hide and leather industry throughout the world had by no means adjusted itself to what before the war would have been termed normal. In the United States the year was a profitable one in the various branches of the industry. There was an increase in imports of hides and skins as well as in manufactures of leather over 1918, the amount being almost that of 1917. In 1919 the exports of hides and skins from the United States exhibited large gains, as did that of manufactures of leather. In particular there was a demand from Europe for fancy leathers, which at one time were imported in considerable quantity.

One condition that affected the leather industry was the demand for high grade products such as boots and shoes, traveling bags, and like articles where the prices reached figures hitherto unheard of. In the United States, and to a less extent in Great Britain and other countries which had not been directly ravaged by the war the general public—that is the wage earning classes—experienced great prosperity with unusual purchasing power and as a result unusual markets were afforded for high grade and fancy wares which led to unprecedented demands for finer grades of leather. America became an exporter where once much of this material came from overseas.

The demand for leather in the shoe industry continued, due to the fact that the factories were

busily engaged and their product even at the end of the year was well sold ahead.

The United States Tariff Commission in its annual report devoted considerable attention to hides, skin, leather, etc., studying with great care the changes in conditions of production that had resulted since 1913, especially in regard to finished goods, the manufacture of which was greatly stimulated by the shutting off of European imports due to the war. In particular the fancy leather trade of continental Europe was reduced or eliminated on account of the war so the United States not only had to meet the domestic demand but also that of such foreign markets as South America.

Hides and leather in Europe presented many strange conditions in 1919 aside from the difficulties of exchange which made foreign commerce extremely difficult even where possible. Russia, which in the past had been a tremendous reservoir for hides and skins and a source of supply for America, ceased to be a factor in the markets of the world and at some places exports were forbidden entirely. In Norway also there was an embargo on the export of hides and skins with the purpose of holding them for domestic tanneries and leather industries. An important action was taken by British India when an export duty of 15 per cent was put on all shipments of hides and skins, but with a 10 per cent rebate to Great Britain and the countries of the British Empire, thus affording a 10 per cent advantage to them over America.

The Federation of Leather Belting Manufacturers of the United Kingdom decided during the year that after September 1st, no leather belting should be sold except on the basis of the new National Price List, which quotes for all widths of belting per foot with thicknesses specified according to the customer's requirements and the purpose for which the belting is intended. This was an innovation from the previous British practice of selling leather belting chiefly by weight, or by measurement without any specified thicknesses. See **BOOTS AND SHOES; LIVE STOCK.**

LEE, JAMES WIDEMAN. Clergyman and author, died at St. Louis, Mo., October 4. He was born at Rockbridge, Ga., Nov. 28, 1849, educated at Emory College, Ga., and ordained to the Methodist Episcopal ministry in 1876. After successively holding several pastorates in Georgia he went to Palestine in 1894 in search of material for a book on the footsteps of Christ. He held among other important positions in the church that of presiding elder of the St. Louis District and chaplain of Barnes Hospital, St. Louis. His list of writings includes a wide and varied range of subjects of which may be mentioned among the later ones the following: *Religion of Science* (1912); *Magnetizing the Commonplace* (1914); *Geography of Genius* (1915); *Climate and Unity* (1916). In 1917 to 1918 he delivered addresses on the Bible and Life, the Making of the Flag, and Gen. Robert E. Lee.

LEFROY, GEORGE ALFRED. Bishop of Calcutta after 1913, died January 1. He was born

in County Down, Ireland, in August, 1854, and educated at Trinity College, Cambridge. He was ordained in 1879 and in the same year joined the Cambridge Mission in Delhi of which he became the head in 1891. From 1891 to 1912 he was bishop of Lahore.

LEGISLATION, STATE. See CITY PLANNING and MUNICIPAL GOVERNMENT.

LEHIGH UNIVERSITY. A non-sectarian institution for the education of men, at Bethlehem, Pa. During 1919 the university was re-organized into three departments, the college of engineering, the college of arts and science, and the college of business administration. The enrollment in the fall was 1100. There are 90 members of the teaching staff. The library contains 140,000 volumes. Productive funds total \$3,000,000, and the income for the year was about \$450,000. Lehigh was founded in 1866. President, Henry Sturgis Drinker, LL.D.

LELAND STANFORD JUNIOR UNIVERSITY. A non-sectarian co-educational institution at Palo Alto, Cal., (post office, Stanford University, Cal.). The university was founded in 1891 by Leland Stanford and his wife, in memory of their son. The enrollment for the summer term, 1919, was 520; that for the autumn quarter, was 2441. The faculty number 345. The productive funds amounted in 1917-18 to \$24,663,000; the income was \$1,409,000. The library contains 298,856 volumes. During the year a new library building was completed, at a cost of \$700,000. It forms the central building in the new Quadrangle group, has space for about 700,000 volumes, and is proving invaluable to the institution. Military training has been continued, with the addition of an artillery section of the R. O. T. C. President, Ray Lyman Wilbur, M.D.

LEONCAVALLO, RUGGIERO. Italian composer, died in Rome, August 9. He was one of the best known and most admired of the Italian composers of the day. He was born at Naples in 1858 and devoted himself with Mascagni to the promotion of the newer music. He was a great admirer of Wagner and began a historical trilogy under his influence but discontinued it upon the extraordinary success of his opera *Pagliacci* in 1892. This scored triumphs all over the world and became one of the familiar operas in the United States. It was followed by *La Bohème*, *Zaza*, *Figaro*, *Mai ra*, *Malbruk*, and others. He wrote his own librettos.

LEOPOLD, RALPH. See MUSIC, Artists, Instrumentalists.

LEROUX, XAVIER HENRI NAPOLEON. French composer, died in Paris, February 30. He was born at Velletri, Italy, in 1863, the son of a musician of some note, and studied at the Conservatory of Paris, where he was a pupil of Dubois and Massenet. He carried off the prize of Rome in 1885 and entered upon a brilliant career, publishing as his first important work, the cantata *Endymion*, (1890). He was devoted to dramatic composition, but composed also several motets, a mass with orchestra, and the overture *Harald*. At Brussels in 1895 he produced for the first time the opera *Evangeline* which was followed by the brilliantly successful *As-tarté* (1900), and *La Reine Fiammette*, the two last being produced at the Opera Comique. Other scores were: *Venus and Adonis* (1905); *William Ratcliffe* (1906); *Theodora* (1906); and *Le Chemineau* (1907); the last-named being

rendered in New Orleans in 1911. His work is unequal, but everywhere shows the qualities of a masterly musician. It holds a place somewhat apart in French music, having no direct relation with any of the schools at that time in vogue.

LEVY, ALFRED. Chief rabbi of France, died July 22 at Pau where he had been for two years under treatment for ill health. He was born Dec. 14, 1840, at Lunéville, France, studied there in the Lycée, and was appointed rabbi at Dijon in 1866, and later chief rabbi at Lyons where his piety and tact won him the esteem of his fellow citizens. On February 5, 1908, he was elected chief rabbi of France by the secretarial council. He was chevalier of the Legion of Honor.

LEVY, LOUIS EDWARD. Photo-chemist and inventor, died at Philadelphia, Pa., February 17. He was born in Stenowitz, Bohemia, Oct. 12, 1846. He was brought to the United States in childhood and was educated in the schools of Detroit, Mich., and in the University of Michigan. He made special studies in optics and he lectured and wrote successfully on subjects in applied science. Experiments which he made in 1873-74 resulted in his invention of the so-called "Levytype." Along with his brother, Max L., he received a medal for the invention of the "Levy line screen" and in 1900 received a medal for his invention of the "Levy acid blast," both medals being given by the Franklin Institute. He made other important inventions for which he received honors. He was author of the *Russian Jewish Refugees in America* (1895); *Business, Money, and Credit* (1896); and (with H. Bilgran) *Cause of Business Depressions* (1914).

LHEVINNE, JOSEF. See MUSIC, Artists, Instrumentalists.

LIBERIA. An African negro republic on the western coast, extending from the French Ivory Coast on the east to the British colony of Sierra Leone on the west, and including that portion of the North Guinea coast which lies between the rivers Mano and Cavally, a distance of about 350 miles. Area, variously estimated at from 35,000 to 41,000 square miles and population at 1,500,000 to 2,100,000 all of the African race, but including about 12,000 Americo-Liberians. The natives belong chiefly to the Kru stock and its allies. They are a pure negro race and few of them have been Christianized. Other stocks are Mandingos (Mohammedan), the Gola, the Kisi and the Kpwezi. The number of civilized negroes has been placed at about 50,000 and they are found chiefly in the coast region. They use English as their daily language and they are for the most part Christian. Capital, Monrovia, with an estimated population, including Krutown, of 6000. It is a port of entry. Other ports are Robertsport, Marshall, Grand Bassa, Buchanan, River Cess, Liberian Gene, Greenville, Sajavlin, Mana Cru, Grand Cess, Sasstown, Harper, Kublake, Half Cavalla and Webó.

Agriculture, mining, and industrial resources have been scarcely developed. The staple product is the native coffee. The chief exports are coffee, cacao, palm kernels, palm oil, rubber, ivory, piassava fibre, and camwood. Exports in 1917 amounted to \$618,536; revenue in 1917-18, \$273,016; expenditures, \$255,767; public debt, Sept. 30, 1918, \$2,131,700. President at the beginning of 1919, Danial Howard, for the term

expiring in 1920; president-elect for the term, 1920-24, C. B. King.

LIBERTY LOANS. See FINANCIAL REVIEW.
LIBRARY ASSOCIATION, AMERICAN.

Founded in 1876 at Philadelphia, this is an organization of American librarians whose purposes are to promote library interest in general, and in particular to bring about needed reformation and improvements; to lessen cost and labor of administration by coöperation; to interchange advice and by frequent meetings to promote *esprit du corps*. At the end of 1919 the Association had a membership of about 4000. During the war it devoted most of its energy and resources to supplying books and periodicals to men in the service of the government, especially those who were overseas, and this work continued into 1919. The sum of over \$5,500,000 was raised to carry on this work by two campaigns in 1917 and 1918. The total personnel of the Library War Service, as it was called, in April, 1919, was 525, many of the workers being trained librarians released by their home libraries for the duration of the war emergency. Overseas shipments to May, 1919, amounted to 2,473,219 books, of which almost 1,000,000 were technical books for study. From a central library in Paris, through 15 regional libraries, the books were sent to 1200 points, reaching American troops everywhere in France. A central library in Coblenz provided for soldiers in Germany. Library service was also provided for American troops in Siberia and Russia, and for naval and marine corps stations in Panama, Alaska, and the outlying island possessions of the United States. There were 1322 branches and station libraries in the large training camps in America in April, 1919, while in January there were 1886. Library stations along the Mexican border numbered 150 for the service of troops on patrol duty. In May, 1919, library service was being given in 228 military hospitals, which number had materially increased at the end of 1919. There were 264 naval stations and 54 marine corps stations served by the Association, while over a thousand ships' libraries were overhauled, and in many cases materially added to. On Nov. 1, 1919, control of all these activities was turned over to the government.

The Executive Board of the Association, at its meeting at Richfield Springs, N. Y., on Sept. 9, 1919, accepted and approved a tentative report of the Committee on an enlarged programme for American library service. This programme included coöperation with the army and navy for the continuation of library service to men in military service; continuation of the work in the Public Health Service Hospitals; the publication of books in the Braille grade 1½ type for blinded soldiers, sailors, and marines; the institution of a new department to supply library service to U. S. Coast Guards and government lighthouse keepers; the extension of libraries on merchant ships owned in this country; the assisting of cities to organize public libraries; the making of a survey of the needs of libraries in the United States; a campaign for \$2,000,000; and "that the American Library Association do all within its power to encourage and assist our Canadian colleagues and fellow-members in the furtherance of the project to establish a National Library for the Dominion of Canada."

The 41st conference of the Association was held at Asbury Park on June 23, 1919. The

principal speeches were "The A. L. A. at the Crossroads," by Wm. W. Bishop; "Interpreting the Library Movement," by Guy E. Marion; "Our Library Resources as Shown by Some Governmental Needs in the War," by Andrew Keogh. The following officers were elected for the coming year: President, Chalmers Hadley, librarian Denver Public Library; first vice-president, George H. Locke, librarian Toronto Public Library; second vice-president, Cornelia Marvin, librarian Oregon State Library; executive board (for term of three years), Carl H. Milam, director Birmingham Public Library; Edith Tobitt, librarian Omaha Public Library; trustees of the Endowment Fund (for term of three years), E. W. Sheldon, trustee New York Public Library; members of Council (for term of five years), Miriam E. Carey, field representative Library War Service; Bessie S. Smith, supervisor of smaller branches and high school libraries, Cleveland Public Library; Phineas L. Windsor, librarian University of Illinois; Lloyd W. Josselyn, librarian Jacksonville Public Library; C. C. Williamson, chief division of economics, New York Public Library. *The Library Journal* is the official organ of the Association, but it brings out many other bulletins and pamphlets concerning its work. Headquarters are at the Library of Congress in the city of Washington, D. C.

LIBYA. An Italian colony on the north coast of Africa, comprising the two provinces of Tripolitana and Cyrenaica, and lying between Tunis on the west and Egypt on the east, that is from about 9° to 23° east longitude, and running south into the unmapped Sahara to a point not definitely fixed. It had been held by Turkey from the sixteenth century but was acquired by Italy as a result of the Turco-Italian war and proclaimed an Italian possession, Nov. 5, 1911. During the War of the Nations it was overrun by Arabs, Turks, and Germans, and after the Germans and Turks gave way, the Arabs continued to defy the Italian government, but on April 24, 1919, they signed a final armistice whereby Italy regained full possession. Area, estimated at 405,800 square miles; population Aug. 3, 1911, 523,176 natives. Later estimates of population run much higher. One places it in 1919 at about 6,000,000 but is merely conjectural. Capital of Tripolitana, Tripoli, with 73,000 inhabitants; capital of Cyrenaica, Benghazi with 35,000; both Mediterranean ports. In respect to race it has been estimated that about 40 per cent of the inhabitants are negro, 30 per cent Arab, 20 per cent Jewish, and less than 10 per cent European (Italians, Greeks, and Maltese). The original Berbers have been merged with Arabs and negroes. The dominant element is Arab. The following information in regard to commercial conditions, etc., is supplied by the United States Bureau of Foreign and Domestic Commerce: Commerce is almost entirely in the hands of the Italians at present, though Maltese and Jews act generally as their agents in trade with the natives. The commercial language and currency are Italian. English, however, may be used in correspondence, though Italian is naturally to be preferred. Commerce of late years has greatly declined owing to the deflection of the caravan trade from Tripoli. In Cyrenaica a few small caravans still arrive. In Tripolitana the arrival of a single important caravan of 20 camels in June, 1919, was considered remark-

able. This deflection of the caravans from the direct Tchad-Tripoli route to the much longer Tchad-Egypt and Tchad-Tunis routes has been effected in the last 12 years by the intelligent work of the British and French, who have dispatched numerous emissaries, residents and traders into the interior to gain the confidence and friendship of the natives. Outside of the caravan trade the chief exports of Libya are: Sponges, woolen cloth, henna, hides (chiefly of sheep and goat), and esparto grass, which is used in the manufacture of fine paper. All these articles are still exported in some quantity. The values of these exports for the year 1917 for Tripolitana alone were as follows: Sponges, \$27,531; woolen cloth, \$82,990; henna, \$69,887; hides, sheep, \$102,549; hides, goat, \$92,553; esparto, figures not given as, owing to great bulk of such material, shipment was suspended during the war. These figures are by no means indicative of the real possibilities for future export, as all Italian commerce was seriously crippled during the war. The exports of sponges, for example, in the year 1913 had a value of \$179,810 for Tripolitana alone. In Cyrenaica for 1917 the exports of woolen cloth, valued at \$165,721, and goatskins, worth \$72,028, were the only ones of real importance. During the war the three most valuable products of Cyrenaica, which are barley, esparto grass, and sponges, were entirely neglected. The barley crop is good, however, in only about one year in three, owing to scant rainfall. Other valuable products of Libya in the prewar period were: Sheep, goats, camels, oxen, horses, skins, Sudanese leather cushions, wool, ivory, salt, cereals, ostrich feathers, butter, and dyewood. There is no doubt that the exports of sponges, esparto grass, barley, hides, wool, and live sheep and cattle may again assume considerable proportions. To sum up the commercial situation in Libya a comparison of the import and export figures of the best year and the worst year during the period of Italian occupation is given, the official statistics for Tripolitana and Cyrenaica being combined: Exports were valued at \$942,033 in 1913, and \$1,007,420 in 1917; imports in 1913 amounted to \$6,745,079, and in 1917 to \$11,661,854. Libya was, therefore, in the unenviable position of having to import goods to almost 12 times the value of its exports. The import situation may be briefly summarized by the statement that Libya required all staple necessities to life save meat and leather.

LIEBKNECHT, KARL. German Socialist, leader of the Spartacus group, killed in Berlin on January 15th. His death followed several stormy months in which he opposed the new government of Germany as a leader of the revolutionary extremists. He was born at Leipzig in 1871, the son of Wilhelm Liebknecht, the celebrated leader of the German Socialist Democratic party. He was educated in the universities, studied law, and served in the Prussian guard. He was an ardent Socialist and secured an election in 1908 to the lower house of the Prussian Diet, despite the restrictions on the franchise, and in 1912 became a member of the Reichstag. During the war he was the great outstanding figure of revolt against the war policy of his country, showing a degree of courage that made him the object of admiration throughout the world. He voted the war credits at the beginning, but went into opposition soon afterwards.

His course resulted in his being thrown into prison. Long before this he had served a term of imprisonment when he published an anti-militarist pamphlet in 1907, and he had for many years been a member of the extreme Left of his party, bringing on himself the condemnation of the leaders. In 1915 he was called to the colors and served in a labor battalion on the western front. Whenever he returned to Berlin he tried to obstruct the course of business in the Reichstag by interruptions and other tactics. In 1916 action was taken against him by the Socialist party, amounting practically to expulsion. In April, 1916, he attacked the government in a speech on the subject of finance and as a result was expelled from the House. A few weeks later he was arrested for taking part in the organization of a Mayday celebration in Berlin, convicted of attempts at high treason and other crimes and in the autumn of that year sentenced to four years penal servitude, expulsion from the army, and loss of civil rights for six years (see YEAR BOOK for 1916). He was in prison until the downfall of Germany was certain. At the end of October, 1918, he was released under an amnesty to political prisoners during the brief chancellorship of Prince Max of Baden.

LIFE INSURANCE. See INSURANCE.

LIGHTHOUSES. It would be hardly reasonable to look for any extended lighthouse design and construction in the first year following the great war, and the U. S. Bureau of Lighthouses was in large part concerned with the resumption of peace conditions. On July 1, 1919, all lighthouse vessels and stations which had been operated under the jurisdiction of the Navy Department during the war were returned to the jurisdiction of the Lighthouse Service. In all 46 tenders, 4 light vessels, and 21 light stations with their personnel had been transferred to the navy during the war and had been used not only in special work involving aids to navigation but in mine planting, laying submarine defense nets, etc., during the war and later in effecting the removal of such defenses.

The new construction during the fiscal year ended June 30, 1919, involved three important new light and fog-signal stations at Lorain Harbor, Ohio, Sand Hills, Lake Superior, Mich., and Lime Kiln, San Juan Island, Wash. The light and fog signal at Lorain Harbor was placed in commission in the spring of 1919 at the end of the west breakwater to mark the harbor entrance, and consisted of a fourth order revolving lens mounted in a tower with focal plane 58 feet above mean lake level. The light is furnished by incandescent oil vapor and is occulting white every 10 seconds, light 5 seconds, eclipse 5 seconds. It has 7300 candle power and is visible 15 miles. The Sand Hills light marking a dangerous locality on the South Shore of Lake Superior, was mounted on a brick tower 70 feet high with the focal plane of the lens 91 feet above lake level and visible approximately 18 miles in clear weather. It is a fourth order, ball bearing mounted flashing lens, revolved by a weight operated clock producing one flash of 24,000 candle power every 10 seconds. An incandescent oil vapor lamp is employed. The San Juan Island Light marking an important point on the route from Puget Sound to British Columbia and Alaska has a lens of the fourth order giving a 30,000 candlepower flash every 10 seconds and

visible approximately 13 miles being mounted about 50 feet above high water.

In addition three unwatched lights were placed on dangerous shoals in the Caribbean Sea along the traffic lane from the Gulf Coast of the United States to the Panama Canal through Yucatan Passage. In Alaska 36 additional aids to navigation were established, making a total of 475, of which 180 were lights and 8 were gas buoys. In 1918 there were 439 aids to navigation.

The total number of aids to navigation maintained by the U. S. Bureau of Lighthouses on June 30, 1919, was 16,075 as specified in the accompanying tabulation. It will be seen that there was a net increase of 400, embracing 36 lights, 4 float lights, 86 minor lights, and 283 unlighted aids. There were 5665 lights of all classes in service and 583 fog-signals (not including 79 whistle and 245 bell buoys) of which 49 were submarine signals.

The accompanying table gives a summary of the aids to navigation, under each class, established and discontinued during the fiscal year, and also the net increase, and the number in commission at the end of the fiscal years 1918 and 1919.

Class	Estab- lished	1919 Discon- tinued	In- crease	Total, June 30— 1918 a	1919
Lighted aids:					
Lights (other than minor lights)....	51	15	36	1,732	1,768
Minor lights..	136	50	86	3,046	3,132
Light-vessel stations... 1		3	b 2	52	50
Gas buoys... 73		80	b 7	560	553
Float lights... 6		2	4	158	162
Total....	267	150	117	5,548	5,665
Unlighted aids:					
Fog signals... 6		9	b 3	537	534
Submarine signals....		2	b 2	51	49
Whistling buoys, unlighted....		2	b 2	81	79
Bell buoys, unlighted... 94		7	2	243	245
Other buoys.. 301		142	159	6,896	7,055
Day beacons.. 154		25	129	2,319	2,448
Total....	469	186	283	10,127	10,410
Grand total..	736	336	400	15,675	16,075

a Differences from statistics published in 1918 report are due to minor discrepancies in previous count.

b Decrease.

Improvements in aids to navigation in the Service generally were made during the year, as follows: Twenty fixed lights were changed to flashing or occulting (including 2 light vessels); the illuminant of 4 lights was changed to incandescent oil vapor; the illuminant of 27 lights (including 5 light vessels and 2 buoys) was changed to acetylene; the illuminant of 9 lights was changed to electric incandescent.

The fog signals at seven important stations were improved by the installation of air diaphragms in place of less efficient apparatus.

The first compressed acetylene light established on the Hawaiian Islands, at Molokini Island, an unwatched light on March 18, 1919, completed eight years of service without having been extinguished.

During the year there was a deficiency of both

Y-B—19—13

tenders and light vessels in the service due to an unusual number of casualties in 1918 and 1919. Since January, 1918, Diamond Shoal Light Vessel had been sunk on station by a German submarine; Cornfield Point Light Vessel had been run into by a barge and sunk on station; Cross Rip Light Vessel had been destroyed by the ice; Thirty-five Foot Channel Light Vessel had been destroyed by fire at a contractor's dock; and Bush Bluff Light Vessel and the tender *Gardenia* were condemned as worn out and not worth repair.

Accordingly considerable new construction was recommended in the Commission's report for 1919.

The increased use of radio equipment was found most advantageous for ordinary as well as war purposes and outfits were installed on 32 light vessels and on 16 tenders during the fiscal year. At the end of the fiscal year 40 light vessels and 23 tenders in all had been equipped with radio installations.

Likewise the installation of telephones at light stations was continued during the year. This work was done by the United States Coast Guard under an appropriation made by act of June 12, 1917, to develop coastal communications, including connections with important light stations. On June 30, 1919, there were 139 light stations so connected.

Among the improvements developed during the year of a technical nature may be mentioned in particular those for the fog signals known as diaphone installations, resulting in simplicity of operation, reduced space required for machinery, and lowered initial cost. A new type of metal buoy was developed for use in defining shoal-water channels, being an improvement over wooden spar buoys which are less conspicuous as aids and more expensive to maintain under ice conditions. The stability of the type L gas and bell buoy, where moored in the exposed waters of Alaska and likely to be weighted with ice, was improved.

Another experiment carried out was to determine whether a bell buoy can be arranged to give a definite characteristic and this was successfully accomplished by the installation on a gas buoy of a bell operated by compressed carbon-dioxide gas in storage tanks. The tanks were located in one of the pockets of the buoy, and the bell sounds continuously one stroke every 15 seconds. The buoys successfully replaced a light vessel.

On June 30, 1919, there were 5964 persons employed in the U. S. Lighthouse Service, including 125 technical, 156 clerical, and 5683 employees connected with light stations, vessels, and depots. The service was charged with the maintenance of aids to navigation along 47,300 statute miles of general coast line and river channel. The appropriations for the maintenance of the Light-house Service for the fiscal year 1920 were \$6,690,430, being \$255,568 in excess of those for the preceding fiscal year and include \$45,000 for retired pay. These appropriations were \$1,054,600 less than the estimates submitted. The appropriations for special works made for the fiscal year 1920 amounted to \$354,400.

LIMA, Sir **BERTRAM**. Newspaper proprietor, died in London, February 24. He was born in 1884, went into newspaper work, became private secretary of Lord Rothermere, and while still a very young man controlled several important papers including the *Leeds Mercury* and the

Glasgow Daily Record. His chief success was in the organization of the *Daily Mirror*.

LINDAU, PAUL. German novelist and playwright, died January 31. He was born at Magdeburg, Germany, June 30, 1839, studied French literature for five years in Paris, and became on his return a newspaper editor and writer. As a journalist he was a successful writer of satire and parody, and his pieces for the theatre were marked by these same elements. He became prominent with the production of *Marion*; and among his other plays may be mentioned *Maria*; *Magdalene*; *Ein Erfolg*; and *Varschämte Arbeit*. He became first dramatist in the Berlin Royal Theatre in 1908.

LIQUORS. For this year is recorded the final chapter on the above heading as far as residents of the United States are concerned. On January 29, 1919, Acting Secretary of State Polk issued a Proclamation that, as 36 States had ratified the Constitutional Amendment prohibiting the manufacture and sale of intoxicating beverages, it would become a law on Jan. 16, 1920. Ohio was the 36th State included by the Secretary of State. At the November election the people repudiated the Act of the Legislature. This has led to a discussion as to whether or not the proclamation was not "previous," but, as several other States had in the meantime ratified the amendment, the point practically has no weight.

Under the Act of Nov. 21, 1918, the manufacture of intoxicating liquors was prohibited after May 1, 1919, and the sale after June 30, 1919. Therefore, a legal drink has not been obtainable since the latter date. This is the War Time Prohibition Act, which was to continue in force until demobilization of the army had been effected. During the early spring the President suggested to Congress that it declare such a fact accomplished. This Congress refused to do. In October, Congress passed the National Prohibition Act, which included provision for War Time Prohibition, Enforcement Act, and Industrial Alcohol. On Oct. 27, 1919, the President vetoed the measure because he considered that the necessity for War Time Prohibition no longer existed. Within four hours of the receipt of the message, the House of Representatives passed the bill over his veto, and the next day the Senate did likewise. Action was then commenced in the courts to defeat the War Time Prohibition Act. On Dec. 15, 1919, the Supreme Court declared War Time Prohibition constitutional. This practically ended the hopes of the "Wets" that the stocks of liquors could be disposed of before Jan. 16, 1920. At this writing, even if the President should declare demobilization at an end, the time is too short to save the situation. Financial disaster confronts those with large stocks. On Dec. 30, 1919, there was in bond approximately 60,000,000 gallons of spirits and approximately 15,000,000 gallons of wine. Congress has shown no disposition to reimburse the owners, and export for beverage purposes must cease Jan. 16, 1920. A case is pending in the United States Supreme Court as to whether beer containing 2.75 per cent alcohol by volume is intoxicating. Congress has said that any liquor containing in excess of 0.5 per cent alcohol is intoxicating. This case will not be decided until January, 1920; as well as the actions brought by the States of Rhode Island and New Jersey, which are to the effect that Congress could not interfere with the

police power of the State. On Dec. 22, 1919, the Court called on the government to show cause why the action should not be heard.

The year has been one of adjustment, delay, litigation, etc. Seventy-four distilleries were operating as against 234 the preceding year (13 grain, 23 molasses, and 38 fruit). In addition to these, there were 208 so-called industrial distilleries producing alcohol for denaturization. The large number was occasioned by many breweries making a wort containing more than 0.5 per cent of alcohol and distilling the excess, so that the finished product, or "near beer" contained only the legal amount. No spirits were produced for beverage purposes.

WINE. The production of wines was 55,756,171 gallons, of which 48,000,000 contained less than 14 per cent of alcohol.

BEER. After May 1, 1919, no beer could legally be manufactured, although after June 30th the sale was permitted in certain States by reason of favorable United States District Court decisions, which were reversed in December by the United States Supreme Court. The production was 33,524,748 barrels; number of breweries 669. (This production was for 10 months of the fiscal year). The consumption per capita was

Wines	0.28 gallons, wine
Malt liquors	14.59 gallons, wine
Distilled spirits	1.12 gallons, proof

ADJUSTMENT. Several large whisky distilleries have been turned into alcohol plants. The consumption of non-beverage alcohol in the manufacture of medicines, flavoring extracts, toilet goods (all of which is tax-paid), and in the arts and sciences (tax free or denatured) is a large amount. Alcohol is as necessary a raw material to a great industrial nation as is sulphuric acid.

One important event of the year was the development of a motor fuel with alcohol as the major constituent. The other ingredients are ether (sulphuric) and benzol (obtained from coal tar). This product has been extensively tried out and is giving wonderful satisfaction wherever used. The aeroplanes of the mail service are using it exclusively. If the problem of distribution and price can be overcome, the question of nature's stores of available gasoline oils is of no moment to even this generation. The price at present is five cents more per gallon than gasoline. If successful, the present distilling equipment will hardly be able to supply the needs of the motor cars of New York City alone. Many breweries have been converted into ice cream plants and ice factories. Others are making near beer. Many of the wineries will continue to operate, as it is legal to produce wine for sacramental and medicinal purposes, and a fairly large amount is used in the manufacture of medicinal tonics.

HOME PRODUCTION. Illicit distilling has increased to an alarming extent. The Commissioner of Internal Revenue has refused to publish the figures of illicit stills seized during the last year. The home production of wine and "beer," or rather ale, seems to be widespread. At least five breweries have been devoting their attention to the manufacture of an extract ostensibly for baking and medicinal purposes, but recipes by which it can be used in the manufacture of home brews are numerous and widespread.



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PROHIBITION
Quantities of Liquor Seized in Boston Raids

Many vineyards have sold their crops for the next year. During the late summer, advertisements appeared in the newspapers of the large cities that one or more carloads of grapes were being shipped to town and were for sale for use in the manufacture of "jellies and other household purposes." The "other purposes" can be imagined.

Bay Rum, which was never thought to be potable, has been used for such purposes to so large an extent that the Prohibition Commissioner has ruled that it must have added to it some ingredient to render its use for beverage purposes impossible. Hardly a week goes by without the newspaper statement that some one has died from the effects of drinking denatured alcohol, *which is a deadly poison* when taken continuously. Flavoring extracts and medicinal preparations are all being used by the degenerate for beverage purposes, regardless of the after-effects, except that due to the alcohol.

The taxes collected from beverages were as follows:

Wines	\$10,521,609
Beers	117,503,896
Distilled spirits	302,965,466

The total taxes, including dealers', were \$483,050,854. The taxes derived from the sale of soft drinks, including ice cream, were \$975,378. In this connection, it is interesting to note that, to a certain extent, the sugar shortage was laid to the increased demand for soft drinks and candy.

The production of denatured alcohol was:

	Wine gallons
Specially denatured for factory use only....	9,976,720
Completely denatured	28,294,218

Well satisfied with the results of its victory in the United States, the Anti-Saloon League has decided to carry the "War" into all the countries of the earth. During the spring a conference was held in Paris looking to this end, representatives of 11 nationalities attending the meetings. At present the United States is the only nation (except Turkey) which is "dry." The restrictions placed on the manufacture and sale in the warring countries have been gradually lifted as the stocks of material increased.

In Greece, the wine crop of 1918 was twice that of 1917. Sweden developed a process to produce alcohol from a white moss which grows prolifically in that country. Mexico is to take up on a large scale the manufacture of wine.

LITERATURE. See articles on French, German, Scandinavian, and Spanish literatures, and LITERATURE, ENGLISH AND AMERICAN.

LITERATURE, ENGLISH AND AMERICAN. English and American literature for the first full year after the war shows a shifting of values consequent upon the great struggle. It is obvious that there would be hurried into print many discussions of reorganization in international relationships, both political and commercial. To these must be added an unusual number of historical and economic studies of European and Asiatic nations and an unprecedented mass of discussion relative to industrial reconstruction, in which the relatively new note of industrial democracy is unmistakably sounded. Expressions of the personal religious fervor in-

spired by the war have decreased coincidentally with an increase of books upon the place of the church in and after the war world. Philosophy and psychology have been relatively unproductive while discussions of the psychic world have multiplied exceedingly. The essay, biography, and literary criticism show a vitality indicative of a larger body of serious readers. Poetry appears to have lost the first flush of its new vision but to have settled down into a steady productivity. Fiction both in England and America has manifested a remarkable activity. Significant is the large number of translations of foreign novels: Spanish, French, Dutch, Danish, Russian, Polish, Rumanian, Brazilian, and even Japanese. If this indicates a permanent catholic interest in the fiction of all nations it is a hopeful sign for the future of our literature as well as for the peace of the world. Significant of contemporary interest is the extent to which novelists have undertaken to handle spiritualistic phenomena in their stories. Even more significant is the frank fashion in which they assume the continuance of those unsettled moral and social relationships which the war brought suddenly about. Significant also is the relish of the reading public for those books and stories which bear the unmistakable mark of reality in observation and handling. This new reality and the new directness of style induced, perhaps, by the simplicity of war narratives are yet to have their full effect upon our literature.

Although there are probably no novels of the first rank for the year 1919, there are a number peculiarly interesting for certain marked qualities. May Sinclair in *Mary Olivier* has done a brilliant piece of writing and produced an unusually convincing psychological study; Sir Harry Hamilton Johnston has in *The Gay-Donbays* followed Dickens' *Donbays* to the third generation and drawn a singularly first-hand picture of life in England's governing class in the last quarter century; Hugh Walpole has contributed a voluminous study of Russian life in *The Secret City* and another delightful child study in *Jeremy*; Frank A. Swinnerton has depicted village gossip and snobbishness in *Shops and Houses* and analyzed the rivalry of two women in *September*; John Galsworthy has indicated the shifting standards of English life in *Saints' Progress*; and Joseph Conrad has told the story of a persistent but futile love in *The Arrow of Gold*. Joseph Hergesheimer brings a curious aloofness to *Java Head* and *Linda Condon*; J. C. Snaith a fine simplicity to *The Undefeated*; Stacy Aumonier a humorous insight to *The Querrils*; and H. G. Wells a deal of religio-scientific eloquence to his tract *The Undying Fire*. Compton Mackenzie writes a disappointing *Sylvia and Michael* and an ironically humorous *Poor Relations*; Dorothy Richardson continues Miriam's inner life in *The Tunnel* and *Interim*, fourth and fifth of the *Pilgrimage* series; Israel Zangwill reappears with quaint character work in *Jinny the Carrier*; Arnold Bennett describes Hilda's son in pre-war London in *The Roll Call*; Sheila Kaye-Smith deals with character against a picturesque background of country and town in *The Four Roads* and *Tamarisk Town*; and William Somerset Maugham writes the vigorous but morbid *The Moon and Sixpence*. William De Morgan's last and uncompleted novel *The Old Madhouse* is published with a note of its projected ending by Mrs. De Morgan; there is

careful character work in Mary Watts' *From Father to Son* and in Corinne Lowe's *Saul* and in Alexander Black's *The Great Desire*, and there is the most delightful *Young Visitors* (sic) written, we are told, by Daisy Ashford at the age of nine.

Of distinct importance also are J. D. Beresford's *The Jervaise Comedy*, W. L. George's *Blind Alley*, Archibald Marshall's *Sir Harry*, Maurice Hewlett's *The Outlaw*, Maurice Weyl's *The Choice*, George Woden's *Little Houses*, Stephen McKenna's *Midas and Son* and *Sonia Married*, Mrs. Bernie Babcock's *The Soul of Ann Rutledge*, Mrs. W. K. Clifford's *Miss Fingal*, Alfred Ollivant's *Two Men*, James Branch Cabell's *Jurgen*, Robert Hichens' *Mrs. Marden*, Alice Brown's *Black Drop*, Jerome K. Jerome's *All Roads Lead to Calvary*, Romer Wilson's *Martin Schuler*, R. A. Foster-Melliar's *Panther*, Eden Phillpotts' *Storm in a Tea Cup* and *Evander*, George Birmingham's *Up, the Rebels!*, Gilbert Cannan's *Mummery*, *Pink Roses*, and *Time and Eternity*, and E. Temple Thurston's *The World of Wonderful Reality* and *David and Jonathan*. Significant also are: *The Promises of Alice* by Margaret Deland, *Heritage* by Victoria Mary Sackville-West, *Deadham Hard* by Lucas Malet, *Banked Fires* by E. W. Savi, *The Star of India* by Alice Perrin, *Abbotscourt* by John Ayscough, *Legend* by Clemence Dane, *Cathy Rossiter* and *The House of Courage* by Mrs. Victor Rickard, *The Eve of Pascua* by Richard Dehan, *Pirates of the Spring* by Forrest Reid, *The Quietness of Dick* by R. E. Vernède, *Fate Unseen* by Jean Talbot, *Marriage While You Wait* and *The Tale of Mr. Tubbs* by Mrs. J. E. Buckrose, *Across the Stream* by E. F. Benson, as also his *David Blaize* and the *Blue Door* and *Robin Linnet*, both boy stories; *A Cup of Fury* by Rupert Hughes, *Victorious* by Reginald Wright Kauffman, *Christopher and Columbus* by the Countess von Arnim, *The Tin Soldier* by Temple Bailey, *A Man for the Ages* by Irving Bacheller, *The City of Comrades* by Basil King, *Dangerous Days* by Mary Roberts Rinehart, *Nurse Benson* by Justin Huntley McCarthy, *Lady Larkspur* by Meredith Nicholson, *Jimmie Higgins* by Upton Sinclair, *The Starling* by Juliet Wilbur Tompkins, *If All These Young Men* by Romer Wilson, *The Secret Battle* by A. D. Herbert, *The Forbidden Trail* by Honoré Willsie, *Strong Hours* by Maud Diver, *Simonetta* by Edwin Lefevre, *The Gods Decide* by Richard Bagot, *The Carringtons of High Hill* by Marion Harland, *Helena* by Mrs. Humphry Ward, *Living Alone* by Stella Benson, *The Purple Jar* by Mrs. Alfred Sidgwick, *The Crescent Moon* by Francis Brett Young, as also his *The Young Physician*; and *Our House* by Henry S. Canby.

Studies of character and environment are represented in part by E. M. Delafield's *The Pelicans*, Brinsley MacNamara's caustic *The Valley of the Squinting Windows*, Ida Tarbell's *The Rising Tide*, Henry G. Aikman's *The Groper*, Philip Camborne's *Circuits*, Constance Holme's *The Splendid Faring*, Mary Gaunt's *The Surrender*, Gilbert Frankau's *Peter Jackson*, *Cigar Merchant*, M. H. Hedges' *The Iron City*, Henry B. Fuller's *Bertram Cope's Year*, Josephine Dodge Daskam Bacon's *On Our Hill*, Eleanor Kelly's *Why Joan*, Albert B. Cunningham's *The Chronicle of an Old Town*, Arnold Mulder's *The Outbound Road*, and Mary Hallock Foote's *The Ground-Swell*. The stress is principally on some

phase of sex life in Phyllis Bottome's *A Servant of Reality*, Kathleen Norris' *The Sisters*, Oscar Graeve's *Youth Goes Seeking*, Clarence B. Kelland's *The Little Moment of Happiness*, F. A. Kummer and Mary Christian's *Peggy-Elise*, the anonymous *The Lover*, Louis Wilkinson's *Brute Gods*, John Walter Byrd's *The Born Fool*, Gilbert Parker's *Wild Youth*, Cosmo Hamilton's *Who Cares?*, Gouverneur Morris' *The Wild Goose*, Bohun Lynch's *The Tender Conscience*, and W. B. Maxwell's *A Man and His Lesson*, while adolescence plays a principal part in *The Passionate Pilgrim* by Samuel Merwin, *Ramsey Milholland* by Booth Tarkington, *The Sleeping Partner* by M. P. Willcocks, *The Burning Secret* by Stephen Branch. Studies of women's character and problems are: *The Builders* by Ellen Glasgow, *Hearts of Women* by Morley Roberts, *A Woman's Woman* by Nalbro Bartley, *Consequences* by E. M. Delafield, *The Bells of San Juan* by Jackson Gregory, *The Immortal Flame* by Marie B. Petersen, *The Harbor Road* by Sara Ware Bassett, *The Revolt of Youth* by Corali Hobson, Wilbur Finley Eauley's *Jenny Be Good*, Cecil H. Bullivant's *The Woman Wins*, Sarah Comstock's *The Valley of Vision*, Corra Harris' *From Sunup to Sundown*, Rose Wilder Lane's *Diverging Roads*, Rachel Swete MacNamara's *The Beloved Sinner*, Zephine Humphrey's *Homestead*, and Inez Haynes Irwin's *The Happy Years*.

Romance and adventure are represented by Rachel Swete MacNamara's *The Green Shoes of April*, Mrs. Oliver Onion's *The Disturbing Charm* and *The Land-Girl's Story*, A. Safron-Middleton's *Gabrielle of the Lagoons*, Henry de Vere Stacpoole's *The Beach of Dreams*, Henry C. Rowland's *Pearl Island*, James Lane Allen's *Emblems of Fidelity*, Albert B. Cunningham's *The Singing Mountains*, Ben Ames Williams' *All the Brothers Were Valiant* and *The Sea Bride*, Albert Bigelow Paine's *Dwellers in Arcady*, Reginald Wright Kauffman's *The Azure Rose*, Zane Grey's *The Desert of Wheat*, Eleanor H. Porter's *Dawn*, E. Temple Thurston's *Sheepskins and Grey Russet*, W. J. Locke's *The House of Balthazar*, J. E. Patterson's *The Passage of the Barque Sapho*, and Wilfred R. Childe's *Dream English*. Africa appears in *The City of Palms* by Kathlyn Rhodes, F. E. Mills Young's *The Dominant Race*, Gertrude Page's *The Veldt Trail*, and Talbot Mundy's *The Ivory Trail*; India in C. R. Milton's *The Eyes of Understanding*, and the Far East in Will Levington Comfort's *The Shielding Wing* and *The Yellow Lord*.

Of stories of adventure, mystery and crime detected 1919 has produced an unusual number. The more noteworthy are: Anthony Hope's *The Secret of the Tower*, Rider Haggard's *When the World Shook*, Joseph S. Clouston's *Simon*, John Buchan's *Mr. Steadfast*, Camilla Kenyon's *Spanish Doubloons*, Sax Rohmer's *Dope* and *The Quest of the Golden Slipper*, Gertrude Atherton's *Atalanche*, Isabel Ostrander's *Twenty-Six Clues*, Lee Thayer's *The Mystery of the Thirteenth Floor*, Carolyn Wells' *The Diamond Pin* and *The Man Who Fell through the Earth*, Katharine N. Burt's *The Branding Iron*, Henry M. Rideout's *The Siamese Cat*, Elizabeth Robbins' *The Messenger*, Harold MacGrath's *The Yellow Typhoon* and *The Private Wire to Washington*, Rafael Sabatini's *Historical Nights' Entertainment*, E. P. Oppenheim's *The Wicked Marquis* and *The Bow with Broken Seals*, Oswald Wild-

ridge's *The Luck Penny*, Sacha Gregory's *Yellowleaf*, George Barr McCutcheon's *Sherry*, and Robert W. Chambers' *The Moonlit Way*, *In Secret*, and *The Crimson Tide*. Historical novels are represented by: *Flower o' the Lily* by the Baroness Orczy, *The Exiled Lover* by Theodore G. Roberts, *The Great House* by Stanley Weyman, *Gamesters* by Henry C. Bailey, *The Geste of Duke Jocelyn* by Jeffrey Farnol, *Michael Fourth* by Mary Johnston, and *Love Laughs Last* by G. S. Tallentyre.

Volumes of short stories for the year are many and excellent. Of special merit are: *Humoresque* by Fanny Hurst, *From the Life* by Harvey O'Higgins, *Twelve Men* by Theodore Dreiser, *Deep Waters* by W. W. Jacobs, *Winesburg, Ohio* by Sherwood Anderson, *Blue Aloes* by Cynthia Stockley, *Traveling Companions* a collection of early stories by Henry James, *Waifs and Strays*, a final volume of O. Henry's stories, *The Happy End* by Joseph Hergesheimer, *The Clintons and Others* by Archibald Marshall, *On the Makaloo Mat* by Jack London, another posthumous volume; *Dust of New York* by Konrad Bercovice, *Tales of Three Hemispheres* by Lord Dunsany, *Far Away Stories* by W. J. Locke, *The Gray Dream* by Laura Wolcott, *The Sailor's Home* by Richard Dehan, *Our Casualty*, by George Birmingham, *The Day of Glory* by Dorothy Canfield Fisher, *Lo, and Behold Ye* by Seumas MacManus, *Tumblefold* by Joseph Whittaker, *Short Stories* by R. E. Vernède, *Aftermath* by H. B. Marriott Watson, *All Sorts* by I. A. R. Wylie, and *Believe You Me* by Nina Wilcox Putnam. Others of importance are: *The Doings of Raffles Haw* and *Danger and other Stories* by Sir A. Conan Doyle, *The Night Operator* and *Further Adventures of Jimmie Dale* by Frank L. Packard, *They Who Smiled* by Percival Gibbon, Ethel Dell's *The Tidal Wave*, Kate Douglas Wiggin's *Ladies in Waiting*, Mary Roberts Rinehart's *Love Stories*, Charles E. Van Loan's *Taking the Count*, Temple Scott's *The Silver Age*, Josephine Dodge Daskam Bacon's *Square Peggy*, Baroness Orczy's *The League of the Scarlet Pimpernel*, Anna Katharine Green's *Room Number Three*, Ellen N. LaMotte's *Civilization*, Edward Lucas White's *The Song of the Sirens*, and Mary Raymond Shipman Andrews' *Joy in the Morning*. Octavus Roy Cohen's *Polished Ebony* and E. K. Means *More E. K. Means* are stories of negroes. Humorous stories are: *The Life of the Party* and *Eating in Two or Three Languages* by Irvin Cobb, *Own Your Own Home* and *The Real Dope* by Ring W. Lardner, *Mr. Dooley on Making a Will* by Peter Dunne, *The Hohenzollerns in America* by Stephen Leacock, *Ma Pettengill* by Harry Leon Wilson, and *Potash and Perlmutter Settle Things* by Montague Glass. Anthologies include Edward J. O'Brien's *The Best Short Stories of 1918* and his *The Great Modern English Short Stories*, and R. J. Holmes and A. Starbuck's *War Stories*. The best book on short stories is Blanche Colton Williams' *How to Study the Best Short Stories*.

POETRY. Of special importance in the field of poetry are: John Masefield's *Reynard the Fox*, or *Ghost Heath Run*, Richard Aldington's *War and Love*, Rudyard Kipling's *The Years Between*, Siegfried Sassoon's *Counter Attack*, Amy Lowell's *Pictures of the Floating World*, John Gould Fletcher's *The Tree of Life*, John Hall Wheelock's *Dust and Light*, James Oppenheim's *The Solitary*, John McCrae's *In Flanders' Field*

and *Other Poems*, Aline Kilmer's *Candles That Burn*, J. C. Squire's *Poems, First Series*, John Drinkwater's *Poems, 1908-1919*, Edgar Lee Masters' *Starved Rock*, William Rose Benét's *Perpetual Light*, Mary Carolyn Davies' *Youth Riding*, Vachel Lindsay's *The Golden Whales of California*, Ezra Pound's *Quia Pauper Amavi*, William Watson's *Superman Antagonists*, Thomas Hardy's *Collected Poems*, Benjamin G. Brooks' *Camelot*, Maurice Hewlett's *Flowers in the Grass*, Herbert Tremaine's *The Wide Garden*, John Oxenham's *Hearts Courageous*, Laurence Binyon's *The Four Years*, Babette Deutsch's *Banners*, Corinne Robinson's *Service and Sacrifice*, Eunice Tietjens' *Body and Raiment* and her renderings, *Profiles from China*, George Edward Woodbury's *The Roamer*, and Cicely Fox Smith's *Sailor Town and Small Craft*.

There are also: *The Beloved Stranger* by Witter Bynner, *Songs and Poems* by John Jay Chapman, *The Heart of Peace* by Laurence Housman, *The Song of Three Friends* by John G. Neihardt, *Poems About God* by John Crowe Ransom, *Wild Swans at Coole* by William Butler Yeats, *Shadowy Thresholds* by Cale Young Rice, *A World of Windows* by Charles Hanson Towne, *Poems of London* by John Presland, *The Death of Man* by R. C. Trevelyan, *The Happy Bride* by F. Tennyson Jesse, *A Volume of Satirical Lyrics* by G. K. Chesterton, *Songs in Cities and Gardens* by Helen Granville Barker, *Poems* by Theodore Maynard, and *McAroni Ballads* by T. A. Daly. Mention must also be made of Rose Fyleman's *Fairy Queen*, William K. Seymour's *Swords and Flutes*, Archibald Strong's *Poems*, Roy Anderson Helton's *Outcasts in Beulah Land*, Howard M. Jones' *Gargoyles*, Scudder Middleton's *The New Day*, Alfred Noyes' *The New Morning*, Clement Wood's *The Earth Turns South*, Elizabeth Forman's *The King of the Air*, Gretchen Warren's *The Sword*, James Brookes More's *A Lover's Rosary*, Albert Frederick Wilson's *The Township Line*, John Bunker's *Shining Fields and Dark Towns*, Robert Bridges's *Britannia Victrix*, and Samuel McCoy's *Merchants of the Morning*.

Anthologies, selections, and translations are represented by: *Selections from Swinburne* by Edmund Gosse and J. J. Wise, *Echoes from the Greek Anthology* by J. G. Legge, *Japanese Poetry—The Uta*, and *A Hundred and Seventy Chinese Poems and More Translations from the Chinese* by Arthur Waley, *Ulster Folk Songs and Ballads* by Padric Gregory, *The Kiltartan Poetry Book* by Lady Gregory, *The Second Book of Modern Verse* by Jessie B. Rittenhouse, a second *Treasury of War Poetry* by G. H. Clarke, *The Oxford Book of Australian Verse* by Walter Murdoch, vol. v of T. H. Ward's *English Poets*, *Modern American Poetry* compiled by Louis Untermeyer, *Others—An Anthology* by Alfred Kreymborg, *Georgian Poetry* by E. M., *A Treasury of 17th Century English Verse* by H. J. Massingham, *The St. Andrew's Treasury of Scottish Verse* by Alexander Lawson, *Victory*, an anthology compiled by William Stanley Braithwaite, and the same editor's *An Anthology of Magazine Verse* for 1918.

DRAMA. Among the notable publications in the drama for 1919 are James M. Barrie's *Alice Sit by the Fire*, Philip Moeller's *Molière*, John Drinkwater's *Abraham Lincoln*, Arnold Bennett's *Judith*, Bernard Shaw's *Heartbreak House*, including beside the title play, *Great Catherine* and

Playlets of the War, Eugene Gladstone O'Neill's *Moon of the Caribbees and other plays*, Herbert Trench's *Napoleon*, Gilbert Cannan's *Everybody's Husband*, Eden Phillpotts' *St. George and the Dragon*, Geoffrey Whitworth's *Father Noah*, a morality play, D. H. Lawrence's *Touch and Go*, Gordon Bottomley's *King Lear's Wife*, Laurence Housman's *The Wheel*, Stuart Walker's *More Portmanteau Plays*, Herbert Tremaine's *The Handmaidens of Death*, and Percy MacKaye's *Washington*, a ballad play, and his *Will of Song*, a community festival song-play written in collaboration with Harry Barnhart. There were also: Katherine Brégy's *The Little Crusaders*, Rita Wellman's *The Gentile Wife*, Felton B. Elkins' *Three Tremendous Trifles*, *The Gibson Upright* by Booth Tarkington and Harry Leon Wilson, *Without the Walls* by Katrina Trask, *The Hand of the Potter* by Theodore Dreiser, *The Marsh Maiden* by Felix Gould, *Reconstruction* by Gordon Lea, *The Man of Kerioth* by Robert Norwood, *First Plays* by A. A. Milne, and *The Immortal Hour*, an opera, by Rutland Broughton. There is a collection of *Representative One Act Plays by American Authors* edited by Margaret G. Mayorga, and a volume of four *Harvard Plays*.

Books on the drama include: Brander Matthews' *The Principles of Playmaking*, George Pierce Baker's *Dramatic Technique*, David Belasco's *The Theatre through the Stage Door*, William Winter's *Life of David Belasco*, Arthur Hornblow's *History of the Theatre in America*, Louis Calvert's *Problems of the Actor*, Agnes Platt's *Practical Hints on Playwriting*; *Dunsany the Dramatist* by Edward Hale Bierstadt, *Ibsen in England* by Miriam Franc, *Ibsen in Germany* by William H. Eller, *Old Saws and Modern Instances* by W. L. Courtney, and *Comedians All* by George Jean Nathan.

LITERARY CRITICISM. Among the important books in this field are: G. Gregory Smith's *Scottish Literature*; and Ben Jonson, J. M. Robertson's *The Problem of Hamlet*, Herbert Henry Asquith's *Sir Henry Wotton*, Lady Gregory's *Visions and Beliefs in the West of Ireland*, Walter de la Mare's *Rupert Brooke and the Intellectual Imagination*, Robert Lynd's *Old and New Masters*, Wilbur L. Cross's *The History of Henry Fielding*, John W. Cunliffe's *English Literature during the Last Half Century*, Walter Pater's collection of fugitive essays entitled *Sketches and Reviews*, Arthur Symonds' *Studies in the Elizabethan Drama*, James W. T. Ley's *The Dickens' Circle*, Walter C. Phillips' *Dickens, Reade and Collins*, *Sensation Novelists*, John Livingston Lowes' *Convention and Revolt in Poetry*, Louis Untermeyer's *The New Era in American Poetry*, Marguerite Wilkinson's *New Voices*, J. W. MacKail's *Pope*, A. H. Cruickshank's *Philip Massenger*, Irving Babbitt's *Rousseau and Romanticism*, E. A. Peers and Margery Finch's *The Origins of French Romanticism*; and *New Paths*, a discussion of art, fiction and poetry, edited by C. W. Beaumont and M. T. H. Sadler. Mention must also be made of: *Anatole France* by Lewis P. Shanks, *Some Modern French Writers* by G. Turquet Milne, *Main Currents in Spanish Literature* by J. D. M. Ford, *The Art of the Novelist* by Henry B. Lathrop, *Modern English Writers* by Harold Williams, *Emerson and his Philosophy* by J. Arthur Hill, *A Book of R. L. S.* by George E. Brown, *Greek Tragedy* by Gilbert Norwood, *Cervantes* by Rudolph Schevill, *Dante*

by Henry Dwight Sedgwick, *The Life of Dante Alighieri* by Charles A. Dinsmore, *Tolstoy* by G. R. Noyes, *Currents and Eddies in the English Romantic Generation* by Frederick E. Pierce, *Books and Things* by Philip Littell, *The Erotic Motive in Literature* by Albert Mordell, *The Golden Age of Authors* by William W. Ellsworth, *Tradition and Change* by Arthur Waugh, *Ireland in Fiction* by Stephen J. Brown, and *Lewis Theobald* by Richard F. Jones.

Of philological studies there are: *On English Homophones* by Robert Bridges, *A History of Modern Colloquial English* by Henry Cecil Wyld, *On the Relations between Spoken and Written Language* by Henry Bradley, *The Pronunciation of Standard English in America* by George Philip Krapp, *The American Language* by Henry Louis Mencken, *Chapters on English* by Otto Jespersen, and further issues of *Murray's New English Dictionary* which brings that monumental work near its end.

ESSAYS. The war appears to have quickened the essayist as it has enlarged his matter. There is a struggle for new intellectual and moral footholds. Notable among the contributions of the year are: Havelock Ellis's *The Philosophy of Conflict and Other Essays in War Time*, Dixon Scott's posthumous *A Number of Things*, Max Beerhohm's *Seven Men*, G. K. Chesterton's *Irish Impressions and A New Volume of Essays*, Stephen Graham's *A Private in the Guards*, George Birmingham's *An Irishman Looks at His World*, Austin Harrison's *Before and Now*, Frederic Harrison's *Obiter Dicta*, Alfred Ollivant's *The Next Step, Uncensored Celebrities and More Uncensored Celebrities* by E. T. Raymond, *Ploughshare and Pruning-Hook* by Laurence Housman, *Echoes Old and New* by Ralph Nevill, Edith Wharton's *French Ways and Their Meaning*, "Saki's" *The Toys of Peace*, Henry Arthur Jones' *Patriotism and Popular Education*, John Middleton Murry's *The Evolution of an Intellectual*, John Galsworthy's *Another Sheaf and Lectures and Addresses*, James Branch Cabell's *Beyond Life*, Gilbert Cannan's *The Anatomy of Society*, Katherine Fullerton Gerould's *Modes and Morals*, Mrs. A. Burnett-Smith's *As Others See Her*, an analysis of the American woman, and Henry S. Canby's *Education by Violence*. Important also are: Henry Louis Mencken's *Prejudices*, Thomas Burke's *Out and About London*, Lord Dunsany's *Nowadays*, Ellwood Hendrick's *Percolator Papers*, Charles S. Brooks' *Chimney Pot Papers*, Laura Spencer Porter's *Adventures in Indigence*, William Butler Yeats' *Essays Irish and American*, Ralph Adams Cram's *The Sins of the Fathers*, Gerald Cumberland's *Set Down in Malice*, Henry Van Dyke's *The Valley of Vision*, Israel Zangwill's *Chosen Peoples; The Hebraic Ideal versus the Teutonic*, Paul Elmer More's *With the Wits*, Solomon Eagle's *Books in General*, Theodore Maynard's *Carven from the Laurel Tree*, Robert Cortez Holliday's *Broome Street Straws and Peeps at People*, E. V. Lucas *The Phantom Journal*, Stephen Gwynn's *Irish Books and Irish People*, Edmund Gosse's *Some Diversions of a Man of Letters*, Edward Cook's *More Literary Recreations*, *Quoth the Raven* by E. V. L. and G. M., *Men and Manners in Parliament* by Henry Lucy, *The Lady* by Emily James Putnam, *Drake, Nelson and Napoleon* by Walter Runciman, and the posthumous collections *The Curious Republic of Gondour* by Mark Twain, *The Functions of the Poet*

and *Other Essays* by James Russell Lowell, *A Critic in Pall Mall*, a collection of reviews, by Oscar Wilde, and *Contemporaries of Shakespeare* by Charles Algernon Swinburne, edited by Edmund Gosse and J. J. Wise.

FINE ARTS. Painting and design are represented for the year in such volumes as: *Art and the Great War*, an important book of reproductions and critical comment, by A. E. Gallatin; *War Posters Issued by all the Belligerent Powers*, edited by Martin Hardie and Arthur K. Sabin; *Etchers and Etching* by Joseph Pennell, *American Painting and its Traditions* by John C. Van Dyke, *Essays on Art* by A. Clutton-Brock, *Great Artists and their Work by Great Authors* compiled by Alfred M. Brooks, *Essentials in Art* by Oswald Sirén, *Art Principles* by Ernest Govert, *The Theory and Practice of Color* by Bonnie E. Snow and Hugo B. Froehlich, *Prints and Drawings by Frank Brangwyn, with some other phases of his Art* by Walter Shaw Sparrow. Architecture and decoration by: *Westminster Cathedral and its Architect* by W. De L'Hopital, *English Church Monuments of the Gothic Period* by F. H. Crossley, *Hellenic Architecture* by Edward Bell, *Old New England Doorways* by Albert G. Robinson, *The English Interior* by Arthur Stratton, *Color Schemes for the Home and Model Interiors* by H. W. Frohne and A. F. and B. Jackson, *The Practical Book of Interior Decoration* by H. D. Eberlein, Abbott McClure and E. S. Holloway, *Italian Furniture and Interiors* by George L. Hunter, and *Interior Paintings* by Patrick W. Adam. There are also: *A Musical Motley* by Ernest Newman, *English Madrigals* by E. H. Fellowes, and *The Complete Opera Book* by Gustave Kobbe.

BIOGRAPHY AND AUTOBIOGRAPHY. The year 1919 shows a considerable number of interesting biographical studies, among which are: *Samuel Butler; a Memoir* by Henry Festing Jones, a *Supplement to the Letters of Horace Walpole* edited by Mrs. Paget Toynbee, *Bolingbroke and Walpole* by J. M. Robertson, *My Generation* by William Jewett Tucker, *An American Idyll* by Cornelia Stratton Parker, *Labrador Days* by Dr. Grenfell, *The Letters of Charles Algernon Swinburne* edited by Edmund Gosse, *The Letters of Henry James* edited by Percy Lubbock, *Memories Grave and Gay* by Florence H. Hale, *The Life and Complete Works of George Herbert* by G. H. Clarke, *Frederick Locker Lampson* by Augustine Birrell, *Memories of George Meredith* by Lady Butler, *Memoirs* by Lord Fisher, *Henry Fox* by the Earl of Ilchester, *Fifty Years in the Royal Navy* by Admiral Sir Percy Scott, *The Life Pilgrimage of Charles Hargrove* by L. P. Jacks, *Enjoying Life and the Journal of a Disappointed Man* by W. N. P. Barbellion, *The Letters of Susan Hale* edited by Caroline P. Atkinson, *Richard Cobden* by John A. Hobson, *Clemenceau, the Man and His Time* by Henry M. Hyndman, *The Letters of Washington Irving to Henry Brevoort* and *The Letters of Henry Brevoort to Washington Irving*, both edited by George S. Hellman, *John Redmond's Last Year* by Stephen Gwynn, *Colonel John Scott of Long Island* by Wilbur C. Abbott, *Canon Barnett* by Henrietta O. Barnett, *Impressions of Theodore Roosevelt* by Lawrence F. Abbott, *Theodore Roosevelt* by William Roscoe Thayer, *The Life of Theodore Roosevelt* by William Draper Lewis and the delightful *Theodore Roosevelt's Letters to his Children* edited by Joseph Bucklin Bishop. Val-

uable also are *From Midshipman to Rear Admiral* by Rear Admiral Bradley A. Fiske, *Fernando, an Autobiographical Study* by John Ayscough, *Joyce Kilmer, Poems, Essays, and Letters* by Robert C. Holliday, *Artemus Ward* by Don Carlos Seitz, *Years of the Shadow* by Katharine Tynan Hinkson, *The Life of Mrs. Robert Louis Stevenson* by Mrs. Nellie Van de Grift Sanchez, *Marshal Ferdinand Foch; His Life and his Theory of Modern War* by Andrew H. Atteridge; four lives of *Abraham Lincoln* by Luther L. Robinson, J. Alfred Sharp, Francis Grierson, and Ralph Shirley, respectively, *Prime Ministers and Some Others* by George W. E. Russell, *Edward Wyndham Tennant* by Lady Glenconner, *The Man Called Pearse* by Desmond Ryan, *Mid-Victorian Memories* by Matilda Betham-Edwards, *Some Winchester Letters of Lionel Johnson*, *Arthur Hugh Clough* by James I. Osborne, *Mrs. Gladstone, A Memoir*, by her daughter, Mrs. Drew, *From Friend to Friend* by Lady Ritchie, *John Brown, Soldier of Fortune*, by Hill Peebles Wilson, and *Marse Henry* by Henry Watterson.

PHILOSOPHY, PSYCHOLOGY, RELIGION AND EDUCATION. The philosophical output for the year is small, including chiefly: *Morale and Its Enemies* by William Ernest Hocking, *Idealism and the Modern Age* by George Plimpton Adams, *Altruism, Its Nature and Varieties* by George Herbert Palmer, *The Present Conflict of Ideals* by Ralph Barton Perry, *Truth, an Essay in Moral Reconstruction* by Charles Walston, *Cultural Reality* by Florian Znaniecki, *A Primer of Ethics* by John M. Robertson, *The Reign of Religion in Modern Philosophy* by S. Radhakrishnan, *Life and Evolution* by J. A. Thomson, *An Examination of William James' Philosophy* by J. E. Turner, *The Relation of John Locke to English Deism* by Samuel G. Hefelbower, *The Faith of an Agnostic* by G. G. Greenwood, and *Modern Science and Materialism* by Hugh Elliott. Psychic phenomena come in for an unusual amount of attention in such books as: *Life after Death and Contact with the Other World* by James H. Hyslop, *Christopher* by Sir Oliver Lodge, *The New Revelation and The Vital Message* by Sir A. Conan Doyle, *Reunion in Eternity* by Sir W. Robertson Nicoll, *Spiritism in the Light of Faith* by T. J. Hardy, *Modern Psychical Phenomena* by Hubert Lavington, and *Spiritualism: Its History, Phenomena and Doctrine* by J. Arthur Hill.

Of books on psychology there are: *The Psychology of Courage* by Herbert Gardner Lord, *Psychological Principles* by James Ward, *The Origin of Consciousness* by Charles A. Strong, *Adolescence* by Stephen Paget, *The Natural History of a Child* by Courtenay Dunn, *The Mind of a Woman* by A. P. Schofield, *The Philosophy of Speech* by George Willis, *A Fragment of the Human Mind* by Theodore Merz, *Mind and Conduct* by Henry Rutgers Marshall, *Animism* by George W. Gilmore, *Instincts in Industry* by Ordway Tead, and *Thoughts of a Psychiatrist on the War and After* by William A. White.

Writers on religion, theological and applied, have published the following: Edward Washburn Hopkins' *The History of Religions*, A. B. D. Alexander's *A History of Religious Thought*, Hastings Rashdall's *The Idea of Atonement in Christian Theology*, A. T. Robertson's *The Divinity of Christ*, *The Idea of Immortality* by George Galloway, Horatio W. Dresser's *On the Threshold of the Spiritual World*, E. G. Georg

Wobbermin's *Christian Belief in God*, the second volume of George Foot Moore's *History of Religions*, the third volume of Sir James George Frazer's *Folk-Lore in the Old Testament*, the second volume of the *Dictionary of the Apostolic Church* and the tenth volume of *The Encyclopedia of Religion and Ethics*, both under the editorship of James Hastings, Frederick Schleier's *Religion and Culture*, David A. Murray's *The Supernatural*, Morris Jastrow's *The Gentle Cynic*, Alexander R. Gordon's *The Faith of Isaiah*, and Arthur Hirtzel's *The Church, the Empire and the World*. There are to be mentioned also: Francis J. McConnell's *Democratic Christianity*, Bishop W. R. Inge's *Outspoken Essays*, *The Spirit: God and His Relation to Man considered from the Standpoint of Philosophy, Psychology, and Art*, edited by Canon B. H. Streeter, *Social Disorders and Social Progress in the Light of Jesus Christ* by Frederick C. Spurr, *A Conflict of Opinion* by Arthur Ponsonby, *Social Evolution and the Development of Religion* by Carl K. Mahoney, *Christian Internationalism* by William P. Merrill, *Religion and the War* edited by E. H. Smith, *Social Christianity in the New Era* by Thomas Tiplady, *Why We Fail as Christians* by Robert Hunter, and *The Spread of Christianity in the Modern World* by Edward C. Moore.

The new problems of education are discussed in: *Comparative Education: Studies of the Educational System of Six Modern Nations*, edited by Peter Sandiford, Archibald E. Dobbs' *Education and Social Movements*, Ellwood P. Cubberley's *Public Education in the United States*, Andrew Fleming West's *War and Education*, Evelyn Dewey's *New Schools for Old*, Parke R. Kolbe's *Colleges in War Time and After*, Francis B. Pearson's *The Reconstructed School*, Thorstein B. Veblen's *Higher Learning in America*, J. W. Adamson's *A Short History of Education*, T. Percy Nunn's *Education*, Stewart Paton's *Education in War and Peace*, and *Problems of National Education* by twelve Scottish Educators, edited by John Clarke, also A. W. Newton's *The English Elementary School*, and C. H. Gray's *The Future and the Public Schools* (English).

HISTORY. Noteworthy among the historical publications of the year are: the eighth volume of James Ford Rhodes' *History of the United States*, *The War with Mexico* by Justin H. Smith; *Ireland and England* by Edward R. Turner, *A History of France from the Earliest Times to the Treaty of Versailles* by William Stearns Davis, *Fifty Years of Europe* by Charles D. Hazen, *The New Map of Asia* by Herbert Adams Gibbons, *The Congress of Vienna* by Charles Kingsley Webster, and *A Survey of the Ancient World* by James Henry Breasted. Important also are: E. A. Hughes's *Britain and Greater Britain in the Nineteenth Century*, *Anglo-American Relations, 1861-5*, by Brougham Villiers and W. H. Chesson, J. L. Morrison's *British Supremacy and Canadian Self-Government*, William C. Braithwaite's *The Second Period of Quakerism*, Arthur R. D. Elliot's *Traditions of British Statesmanship*, W. M. Flinders Petrie's *Some Sources of Human History*, W. E. D. Allen's *The Turks in Europe*, John F. Badderley's *Russia, Mongolia, China, 1658-1796*, Morris Jastrow's *Zionism and the Future of Palestine*, Nahum Sokolow's *The History of Zionism*, vol. 2, H. B. Cotterill's *Italy from Dante*

to Tasso, H. W. V. Temperley's *A History of Serbia*, A. Bruce Boswell's *Poland and the Poles*, Norwood Young's *Life of Frederick the Great*, Nesta H. Webster's *The French Revolution*, J. Arthur Brown's *The Mastery of the Far East*, G. Wyman Bury's *Pan Islam*, Gordon C. Davidson's *The Northwest Company*, R. J. Purcell's *Connecticut in Transition, 1775-1818*, Frederick Turner's *The Frontier in American History*, Edward T. C. Werner's *China of the Chinese*, and Edward D. Trowbridge's *Mexico To-day and Tomorrow*, *Palmerston and the Hungarian Revolution* by C. Sproston, and the major portion of the Yale University Press' fifty Volume *Chronicles of America* series.

POLITICAL SCIENCE AND SOCIOLOGY. Reconstruction incident to the war has inspired an unusual number and variety of discussions. It is possible only to suggest those which deal with the more general problems. Harold J. Laski contributes *English Political Thought from Locke to Bentham and Authority in the Modern State*, Norman Foerster and W. W. Pierson edit *American Ideals*, and Joseph Schäffer and F. A. Cleveland edit *Democracy in Reconstruction*. Viscount Bryce publishes *Democracy*, D. P. Heatley *Diplomacy and the Study of International Relations*, Ralph Butler *The New Eastern Europe*, Edward Jenks *The State and the Nation*, Shaw Desmond *Democracy and The State of Denmark*, Bertrand Russell discusses *The Proposed Roads to Freedom: Socialism, Anarchism, and Syndicalism*, Thorstein Veblen *Vested Interests and the State of Industrial Arts*. William Franklin Willoughby writes an *Introduction to the Study of the Government of Modern States and Government Organization in War Time and After*, Oscar Terry Crosby *International War: Its Cause and Its Cure*, William Roscoe Thayer *Democracy: Discipline: Peace*, S. G. Chang *Modern China: A Political Study*, Henry Chung *The Oriental Policy of the United States*, Amos S. Hershey and Susanne W. Hershey *Modern Japan: Social, Industrial, Political*, Thomas F. F. Millard *Democracy and the Eastern Question*. Of distinct importance also are: Sir Thomas Barclay's *Collapse and Reconstruction: European Conditions and American Principles*, Frederick A. Ogg and Charles A. Beard's *National Governments and the World War*, James Brown Scott's *Armed Neutralities of 1780 and 1800*, George Burton Adams' *The British Empire and a League of Peace*, David J. Hill's *Present Problems in Foreign Policy; Problems of International Settlement* by various writers, with an introduction by G. Lowes Dickinson, *How the War Came* by Robert Threshie Reid and Lord Loreburn, *Peace-Making at Paris* by Sisley Huddleston, *Documents and Statements relating to Peace Proposals and War Aims—December, 1916-1918*, edited by G. Lowes Dickinson, Woodrow Wilson's *Guarantees of Peace, International Ideas, The Triumph of Ideals, Selected Addresses and Public Papers*, and President Wilson's *Great Speeches and other History Making Documents*; William H. Dawson's *The German Empire, 1867-1914, and the Unity Movement; Armed Peace: A Political History of Europe from 1870 to 1914* by W. S. Davis and others, *Powers and Aims of Western Democracy* by William M. Sloane, *Prussianism and Pacifism* by Poultney Bigelow, *Experiments in International Administration* by Francis Bowes Sayre, and *The Pep-*

ple's Part in Peace: an Inquiry in the Basis for a Sound Internationalism by Ordway Tead.

More concerned with industrial reorganization are: *British Labor and the War* by Paul V. Kellogg and Arthur Gleason, *Our Social Inheritance* and also *The Coming Polity* by Victor Branford and Patrick Geddes, *The I. W. W.: A Study of American Syndicalism* by Paul F. Brissenden, *Industry and Trade* by Alfred Marshall, *Bolshevism* by John Spargo, *The Industrial Future* by John Clifford, Lord Leverhulme and A. Maude Royden, *Bolshevism and the United States* and *After the Whirlwind* by Charles Edward Russell, *The British Revolution and the American Democracy* by Norman Angell, *Labor and Reconstruction in Europe* by Elisha M. Friedman, *The Politics of Industry* by Frank Glenn, *Social Reconstruction in Germany* by Meyrick Booth, *The Meaning of Reconstruction* by "Demos," *A History of British Socialism* by M. Beer, *The Irish Labor Movement* by W. P. Ryan, *Coöperation and the Future of Industry* by Leonard S. Woolf, and *American Labor Policy* by Julius Henry Cohen.

Of more purely sociological interest are: *The Social History of the American Family from Colonial Times to the Present* by Arthur Wallace Calhoun—third and last volume, *What is America?* by Edward A. Ross, *Rural Reconstruction in Ireland* by Sir Lionel Smith-Gordon, *Women and World Federation* by Florence G. Tuttle, *American Marriage Laws in their Social Aspects* by Fred S. Hall and Elizabeth W. Brooke and *Applied Eugenics* by Paul B. Popenoe and Roswell H. Johnson.

THE WAR. The year 1919 has seen the publication of a number of attempts to present the history of the great war as a whole as well as a beginning of memoirs and narratives by military officials. Of the latter the outstanding are: *1914* by Field-Marshal Viscount John Denton Pinkstone French, *Forty Days in 1914* and *The Last Four Months: the End of the War in the West* by Major-General Sir Frederick Maurice; *The Grand Fleet, 1914-1916* by Admiral John Rushworth Jellicoe; *The History of the World War* by Francis A. March and Richard J. Beamish, with an introduction by General Peyton C. March, *Field-Marshal Haig's Despatches* edited by Lieut.-Col. J. H. Boraston, *The Battle of Jutland* by Commander Carlyon Bellaire, *The Dover Patrol, 1915-1917* by Admiral Sir Reginald Bacon, *The Dardanelles* by Maj.-Gen. Sir C. E. Caldwell, and (in translation) *My War Memories* by General Ludendorff, *Memoirs* by Admiral von Tirpitz, and *In the World War* by Count Czernin. Other histories of the war are: vols. 21 to 24, which complete *Nelson's History of the War* edited by John Buchan, vol. 6 of Sir A. Conan Doyle's *The British Campaign in France and Flanders*, Edmund Dane's *The British Campaign in Africa and the Pacific* and *The British Campaign in the Nearer East*, J. W. Fortescue's *Official History of the War to December, 1914*, John Buchan's *History of the South African Forces in France*, Sir Julian Corbett's *Official History of the War: Naval Operations*, vol. 1, A. E. Pollard's *A Short History of the Great War*, Roland Usher's *The Story of the Great War*, Capt. E. R. G. R. Evans' *Keeping the Seas*, Major M. H. Donohoe's *With the Persian Expedition*, Major Charles C. Turner's *The Struggle in the Air*, Douglas G. Browne's *The Tank in Action*, Solomon A. Solomon's *Strategic Camou-*

flage, V. J. Seligman's *The Salonica Side-Show*, Major H. O. Lock's *With the British Army in the Holy Land*, Arthur J. H. Pollen's *The British Navy in Battle*, and W. T. Massey's *How Jerusalem Was Won*. Also the fourth volume of Frank H. Simonds' *History of the World War*, Arthur W. Page's *Our 110 Days' Fighting*, the second volume of John Bach McMaster's *The United States in the World-War*, Lieut.-Col. Jennings C. Wise's *The Turn of the Tide*, and *The Reference History of the Great War*.

The contemporary story of Russia is told in: Arthur Ransome's *Six Weeks in Russia in 1919*, John Reed's *Ten Days that Shook the World*, E. H. Wilcox's *Russia's Ruin*, Robert E. C. Long's *Russian Revolution Aspects*, Ariadna Tyrkova-Williams' *From Liberty to Brest-Litovsk*, General C. R. Ballard's *Russia in Rule and Misrule*, Judah L. Magnes' *Russia and Germany at Brest-Litovsk*, Capt. F. F. Moore's *Siberia Today*, and Albert Rhys Williams' *Lenin: the Man and His Work*.

First among the narratives of personal experience in the war comes Brand Whitlock's *Belgium*. Important are: Philip Gibbs' *The Way to Victory*, being the last volume of his war correspondence, and *Realities of War*, Edmund Candler's *The Long Road to Baghdad*, G. M. Trevelyan's *Scenes from Italy's War*, Capt. James Norman Hall's and Lieut. Charles Bernard Nordhoff's *The Lafayette Flying Corps*, Sir Henry Newbolt's *The Book of the Long Trail*, Coningsby Dawson's *Living Bayonets*, Beatrice C. Baskerville's *The Playground of Satan*, Lewis R. Freeman's *Sea Hounds*, Ernest W. Hornung's *Notes of a Camp-Follower on the Western Front* and Robert Keable's *Standing By: War Time Reflections in France and Flanders*. There are also: *Yaska: My Life as a Peasant, Exile, and Soldier* by Marija Botchkareva, *The American Spirit* by Briggs Kilburn Adams, *Small Things* by Margaret Deland, *Fighting the Flying Circus* by Edward V. Rickenbacker, *The Command is Forward* by Alexander Woollcott, *My Italian Year* by Joseph Collins, *Fields of Victory* by Mrs. Humphry Ward, *Across the Blockade* by H. N. Brailsford, *How I Filmed the War* by Geoffrey H. Malins, *Our First Ten Thousand* by Chester W. Jenks, *The Story of the First Gas Regiment* by James T. Addison, *Gun Fodder: the Diary of Four Years of War* by A. Hamilton Gibbs, *War in the Garden of Eden* by Kermit Roosevelt, *The History of the Yankee Division* by Harry A. Benwell, *The Story of the Rainbow Division* by Raymond S. Tompkins, and *The Sword of Deborah* by F. Tennyson Jesse.

Humor is introduced into the account in *Mr. Punch's History of the Great War*; *A Last Diary of the Great War* by Samuel Pepys, Jr., *Sniper Jackson* by Frederick Sleath, *Mud-Larks* by Crosbie Garstin, *Full Speed Ahead* by Henry P. Beston, and *The Exploits of Bilge and Ma* by Peter Clark Macfarlane.

TRAVEL AND OUT-OF-DOORS. Especially to be noted under this head are: W. H. Hudson's *The Book of a Naturalist and Birds in Town and Village*, Sir Ernest Shackleton's *South: the Story of Shackleton's Last Expedition, 1914-1917*, Rosita Forbes' *Unconducted Wanderers*, R. N. Rudmose Brown's *Spitzbergen*, John Burroughs' *Field and Study*, A. Safroni-Middleton's *Wine-Dark Seas and Tropic Skies*, Frederick O'Brien's *White Shadows in the South Seas*, Edith Wharton's *In Morocco*, Mary Gaunt's *A*

Broken Journey, Vilhjalmur Stefansson's *The Friendly Arctic*, George Trumbull Ladd's *Intimate Glimpses of Life in India*, and John H. Finley's *A Pilgrim in Palestine*. Worthy of mention also are: *Unexplored New Guinea* by W. H. Beaver, *Round the World in Any Number of Days* by Maurice Baring, *Among Italian Peasants* by Tony Cyriax, *Indo-China and Its Primitive People* by Capt. Henry Bandesson, *Through Deserts and Oases of Central Asia* by Ella Sykes and Brigadier-General Sir Percy Sykes, *Byways in Southern Tuscany* by Katherine Hooker, *The Romantic Roussillon, in the French Pyrenees* by Isable Savory, *Adventures in Alaska* by Samuel Hall Young, *Green Timber Trails* by William G. Chapman, *Houseboat Days in China* by John O. P. Bland, *California Desert Trails* by Joseph S. Chase, *The Land of To-morrow* by William B. Stephenson, *On Alpine Heights and Bitten Crags* by George D. Abraham, *Pekin Dust* by Ellen N. La Motte, *A Loiterer in New England* by Helen W. Henderson, *The France I Know* by Winifred Stephens, *The Martyred Towns of France* by Clara E. Laughlin, *The Paris of the Novelists* by Bartlett Maurice, *The Cathedral Cities of France* by Herbert and Hester Marshall, *Holland of To-day* by George Wharton Edwards, and *Through Egypt in War Times* by Martin S. Briggs.

LITHUANIA. A part of the former Russian empire including chiefly parts of the Russian government of Vilna, Grodno, Mohilev, Vitebsk, and Minsk; formerly a grand duchy. The area has been estimated at about 100,000 square miles. According to the last Russian census the Lithuanians in Europe and Russia were placed at 2,766,805 and in addition there were 310,631 in Poland. See **RUSSIA**.

LIVE STOCK. MEAT PRODUCTION IN THE UNITED STATES. The following table shows the production of meat in the United States according to estimates of the United States Department of Agriculture for the calendar years 1917 and 1918. Figures are shown in millions of pounds:

	1917	1918
Beef	6,653	7,650
Veal	731	815
Pork	8,450	11,248
Lamb and mutton	473	522
Goat	18	15
Total	16,325	20,250

During 1919 production has been maintained at about the same scale as in 1918 except in the case of beef. For the first six months of 1919 the production of meat was 10,012,000 pounds as compared with 9,586,000 pounds during the same period of 1918. Beef production during the first six months of 1919 was 2,830,000 pounds compared with 3,295,000 pounds for the same period of 1918. The exports of meat products from the United States for the last two fiscal years ending on June 30th were as follows:

	1918 Lbs.	1919 Lbs.
Beef	600,100,000	591,200,000
Pork	1,706,500,000	2,724,900,000
Mutton and lamb	2,100,000	2,200,000
	2,308,700,000	3,318,300,000

The slaughter of animals under Federal inspection in the United States was as follows for the fiscal years ended June 30th:

	1918	1919
Cattle	10,938,415	11,241,991
Calves	3,322,891	3,674,227
Sheep	8,769,497	11,268,370
Goats	149,503	125,660
Hogs	35,448,848	44,398,389

The proportion of Federal slaughter to total slaughter in the United States is estimated at 60 per cent in the case of hogs and sheep, 45 per cent in the case of calves, and 75 per cent in the case of cattle.

THE WORLD'S SUPPLY OF MEAT ANIMALS. The following table gives the number of cattle, hogs, and sheep before the war and in either 1918 or 1919 in 14 of the most important countries engaged in the international trade in meat and meat products prior to the war. (From Circular 142, Office of the U. S. Secretary of Agriculture.) This table does not take into consideration the number of animals in what constituted the former Empires of Austria-Hungary and Russia or in the Balkan States, for it has not been possible to obtain recent figures as to the number in those territories.

LIVE STOCK IN 14 COUNTRIES MOST IMPORTANT IN INTERNATIONAL MEAT TRADE.

Country	Before war	Cattle After war	P. C. change	Before war	Swine After war	P. C. change	Before war	Sheep After war	P. C. change
9 countries of western Europe:									
United Kingdom	12,185,000	12,311,000	+ 1.0	3,953,000	2,809,000	-28.9	27,964,000	27,063,000	- 3.2
France	14,807,000	13,315,000	-10.0	7,048,000	4,021,000	-42.9	16,213,000	9,496,000	-41.4
Italy	6,646,000	6,186,000	- 6.9	2,722,000	2,337,000	-14.9	11,163,000	11,752,000	+ 5.3
Switzerland	1,443,000	1,530,000	+ 6.0	570,000	364,000	-36.1	161,000	225,000	+39.7
Belgium	1,849,000	899,000	-51.4	1,412,000	318,000	-77.2	(185,000)	.....	.....
Netherlands	2,097,000	1,969,000	- 6.1	1,350,000	450,000	-66.7	842,000	437,000	-48.1
Denmark	2,463,000	2,142,000	-13.0	2,497,000	583,000	-76.7	515,000	247,000	-50.1
Sweden	2,721,000	2,584,000	- 5.0	968,000	634,000	-34.4	988,000	1,409,000	+42.6
Germany	20,994,000	17,227,000	-17.9	25,659,000	10,080,000	-60.8	5,521,000	5,299,000	- 4.0
Total	65,205,000	58,163,000	-10.8	46,179,000	21,596,000	-53.2	63,367,000	55,928,000	-11.7
Gain or loss	.....	-7,042,000	.....	.....	-24,583,000	.....	.....	-7,439,000	.....

Country	Before war	Cattle After war	P. C. change	Before war	Swine After war	P. C. change	Before war	Sheep After war	P. C. change
5 surplus countries:									
United States	56,592,000	67,866,000	+19.9	58,933,000	75,587,000	+28.3	49,719,000	49,863,000	+0.3
Canada	6,533,000	10,051,000	+53.8	3,610,000	4,290,000	+18.8	2,175,000	3,053,000	+40.0
Argentina	25,867,000	27,050,000	+4.6	2,901,000	.....	.....	43,225,000	44,850,000	+3.8
Australia	11,745,000	11,040,000	-6.0	1,026,000	1,169,000	+13.9	92,047,000	91,676,000	-0.4
New Zealand	2,020,000	2,888,000	+43.0	349,000	258,000	-26.1	23,996,000	26,538,000	+10.6
Total	102,757,000	118,895,000	+15.7	63,918,000	81,304,000	+27.2	211,162,000	215,980,000	+2.3
Gain or loss	.....	+16,138,000	.....	.....	+17,386,000	.....	.....	+4,818,000	.....
14 countries:									
Gain or loss	167,962,000	177,058,000	+5.4	110,097,000	102,900,000	-6.5	274,529,000	271,908,000	-0.9
Gain or loss	.....	+9,096,000	.....	.....	-7,197,000	.....	.....	-2,621,000	.....

Perusal of this table will indicate that the world's stocks of cattle have increased during the war. It is to be noted, however, that the European stocks will not for some time be available either for dairy or meat production in normal capacity on account of the still prevailing shortage of feed supplies. The widespread prevalence of foot and mouth disease on the continent of Europe can not but have a serious effect on animal production in that part of the world. In Italy it has been largely responsible for the falling off in the number of cattle, and recurring outbreaks in Great Britain have been a matter of much concern to people in that country, the disease having appeared in sections which had not recorded it in many years. Losses from foot and mouth disease in the River Platte country in South America have been heavy, the disease having assumed a virulent form.

THE HORSE SUPPLY. All authorities agree that the war has left Europe decidedly short of horses, the estimates of the number short of the needs varying materially. All over the Continent cattle have replaced horses for work purposes to a large extent, and tractors have been used wherever possible in farming operations, and mechanical traction in cities. Necessity has compelled these expedients regardless of the time consumed in performing a given operation or its cost. Estimates of the number of horses which Europe is actually short vary from slightly less than 1,000,000 head to as much as 5,000,000 head. Some horses have been exported from the United States and Canada during the last year, including Percheron horses sent to England for breeding purposes.

FACTORS AFFECTING THE INTERNATIONAL TRADE. The signing of the Armistice was followed within a few months in the United States by the removal of government control over the prices of hogs, resulting in a rapid rise in quotations, and prices on the hoof reached a higher figure than ever in the history of the industry. All meat animals were similarly affected. Lamb averages were \$17.75 per hundred pounds for the week of July 19th, hog prices reached an average of \$21.95 per hundred pounds during the week of July 12th, and beef cattle averaged \$17.30 per hundred pounds during the week of August 16th. Extreme top Chicago prices were \$18.25 during the week of July 19th on lambs and \$23.60 during the week of August 2d on hogs. From this high point on hogs the market reacted sharply, and quotations at the end of the

year were more than \$9 a hundred less than in August. Various reasons have been attributed for this extreme slump in hog prices. The statement has been made that Europe's storage capacity was crowded to the limit with meat from all over the world which was piled up after the signing of the Armistice in order to be ready for the demand from the Central Powers as soon as they were in a position to make purchases. As far as credits were available, these purchases seem to have been made, but the constant decline in the rate of exchange and the failure of continental Europe to obtain credits for its purchases has shut off orders for food products in America as well as for other supplies.

A curious feature of the situation is found in the beef cattle market, on which higher quotations on prime steers are being made than ever before. The spread on the cattle market is extraordinary, ranging from 8 or 9 cents for common butcher stock, to more than 20 cents for prime steers. The beef cattle market reached during December even higher prices than were quoted during the summer, the price of \$21.50 having been quoted on the Chicago market on December 10th.

THE NORTHWESTERN DROUGHT. The extreme drought in Texas and other parts of the Southwest was broken in the fall of 1918, and that section of the country has never had more abundant feed supplies than during the past year. The Texas drought has been duplicated to a large extent in Montana and adjoining States, in parts of which territory adequate rainfall has not been registered in three years. The drought became particularly severe in Montana and the northern two-thirds of Wyoming during 1919. It extended over western North Dakota, northwestern South Dakota, northern Colorado, Utah, Nevada, Idaho, and up into Alberta and southwestern Saskatchewan. So far as the condition of the ranges is concerned it was not so disastrous as the Texas drought. Grass had not been destroyed, and the turf remained. The condition of live stock was therefore much better than in Texas, and practically no animals had to be moved to save them from immediate starvation. Cattle were still being moved out of Wyoming and Montana in the middle of December to find feed and pasture on the more open ranges of the Southwest.

The most serious phase of the situation is the feed problem during the winter. Stockmen who were forehanded and either reduced the number of animals to be carried through the winter on

the range or brought in adequate supplies of feed, will have no serious difficulty during the winter. However, the winter was extremely early, in some sections the earliest on record, and many ranchmen had done as much feeding by the 1st of December as ordinarily is needed during an entire normal winter. The winter set in with heavy snow, high winds, and low temperatures. Large numbers of cattle and sheep were moved out of the Northwest, inferior ones being sent to market, and the better class of feeders and breeders placed on feed elsewhere. Nearby sources of feed naturally received the first shipments, and pastures in the Dakotas, Nebraska, and Oregon were soon filled up. Later shipments were sent into the Corn Belt, northern Wisconsin, Minnesota, and Michigan, and still later herds were sent to Texas and New Mexico where pasture was found in abundance and a mild winter is to be expected.

The government assisted materially in this movement, the Department of Agriculture organizing an emergency campaign, the extension divisions of agricultural colleges and county agents providing machinery through which the programme could be carried out. The Railroad Administration materially assisted in putting into effect rates on live stock shipped out to be returned, and on feed to be shipped into the drought areas.

PROGRESS OF ANIMAL INDUSTRY IN THE SOUTH. Predictions that the next great development of the animal industry in the United States would come in the Southern States are being verified. The development of the past 15 years has been noteworthy and has been accentuated by the spread of the boll weevil over the Cotton Belt which has compelled the adoption of diversified farming. The constantly growing area of cut-over pine lands is now directing attention to another possible Southern field for the development of the live-stock industry. Constantly increasing taxes without a corresponding return are necessitating the economical use of these lands, for which cattle and sheep ranching and live-stock farming offer the most promising opportunities. Most of the Southern States are attacking this problem vigorously. Landowners' associations have been organized in North Carolina, South Carolina, Georgia, and Mississippi, and the nucleus of such an organization exists in Florida. Semi-public organizations, backed by banking, lumber, and railroad interests, are fostering this movement.

TICK ERADICATION. The success of tick eradication in the South is now so well demonstrated that the end of this struggle is definitely forecast within a few years. Seventy per cent (totaling 509,085 square miles) of the area originally quarantined when the work began in 1906 had been released by Dec. 1, 1919. All of the originally quarantined area in California, Kentucky, Missouri, and Tennessee, the entire States of Mississippi and South Carolina, and over 90 per cent of Alabama and Louisiana, have been released from quarantine. Texas and Florida now remain the great strongholds of the tick, the former having cleared 40 per cent of the originally quarantined area and the latter only 18 per cent. These two States are the only ones in which less than half of the area originally quarantined has been released.

LEGISLATIVE PROGRESS. The tick eradication work is made possible by State legislation which

gives counties and States authority and funds whereby they may meet the coöperation of the federal government. This legislation ranges all the way from "local option" laws (giving the counties authority to begin independently systematic compulsory dipping of cattle), to State laws placing the entire State on a quarantine basis and compelling the systematic dipping of cattle over the entire State as the live-stock sanitary officials direct.

During the year legislation of another character made its appearance with results which promise much for the advance of the Southern live-stock industry. That is the revision of the legislation in Southern States which affects live-stock loans. Live-stock credit has been handled almost entirely through local sources, Southern live-stock paper having no market in Northern banking circles, except that originating in Texas and Oklahoma. The objections to most Southern chattel mortgage laws is that the foreclosure provisions are unduly cumbersome and that the penalties are extremely light for fraudulent removal of mortgaged property. The 1919 session of the Florida Legislature passed a live-stock loan law making foreclosure possible within 15 days, and classing fraudulent removal of mortgaged live stock as a felony when the chattels are worth more than \$100, the punishment being a fine of not more than \$5000 or imprisonment for not more than five years in States prison or both. A similar law was introduced into the Georgia Legislature, and the desirability of legislation of a like character is being considered in other States. Considerable agitation is also noticed for legislation providing State registration of live-stock marks and brands in those Southern States where live stock are handled under range conditions.

THE SOUTH AT THE INTERNATIONAL LIVE STOCK EXPOSITION. When the Hereford bull, Point Comfort XIV, won for the South the grand championship for the breed at the International Live Stock Exposition of 1913, many Northern people felt that the occurrence was a "fluke," which was not likely to be repeated often. But the record of the 1919 International Live Stock Exposition, held at Chicago during the first week in December, demonstrated the possibilities of the South as a live-stock producing section in a remarkable way. Nine grand championships were won by breeders south of the Ohio River, as follows: Shorthorn bull and cow, Hereford bull, Aberdeen-Angus bull, Percheron mare, Duroc-Jersey boar, Poland-China sow, and Hampshire ram and ewe.

Not all of these animals were actually bred on Southern farms, but the fact that they were shown from Southern herds is an illustration of the progressive spirit of Southern breeders, and those which were bred and raised on Southern farms show clearly that the South can produce as fine breeding stock as any other section of the country.

In addition to the winnings in the live-stock judging, the college judging team from the Texas A. and M. College won first in the students' judging contest, and the team representing the Texas agricultural clubs won second by one point only in the non-collegiate judging contest.

LIVE STOCK DISEASES. See VETERINARY MEDICINE.

LIVING, COST OF. See FOOD AND NUTRITION.

LIVONIA. One of the Baltic Provinces

(q.v.) of Russia and a province of the former Russian empire; situated on the Gulf of Riga between Esthonia and Courland. Area, variously estimated at from 16,930 square miles to 18,158 square miles; population estimated Jan. 1, 1915, at 1,778,500. About 43 per cent of the inhabitants are Letts and nearly as many are Esthonians. About four-fifths of the population belong to the Lutheran Church. Capital and largest city, Riga, with a population estimated before the war at 569,000, of whom about 47 per cent were of German descent, 23 per cent Letts, and 25 per cent Russians. Dorpat, the seat of the celebrated university of Dorpat, and the meeting place in 1919 of the Bolshevik and Esthonian peace delegates, had a population before the war of 44,100. Livonia comprises the large island of Oesel (1010 square miles) with a population of about 65,000, chiefly Esthonians. See WAR OF THE NATIONS.

LOYD, CHARLES HARFORD. An eminent English organist, died at Slough, Buckingham, October 16. He was born at Thornbury, Oct. 16, 1849. He served as organist at Gloucester Cathedral and later at Christ Church Cathedral, Oxford. He also conducted a number of important English festivals. He was the founder and first president of the Oxford University Musical Club.

LOYD, Sir WILLIAM FREDERICK. Newfoundland representative at the Paris Peace Conference in 1919. He was born in England where he taught school. He became Prime Minister of Newfoundland in 1918. He had no permanent seat at the Peace Conference.

LOAN AND TRUST COMPANIES. See STATE BANKS.

LOCKS. See CANALS; DAMS.

LONDONDERRY, THERESA SUSY HELEN, Marchioness of. Widow of the late Marquis of Londonderry, died in London, March 16. She was married in 1875 to Viscount Castlereagh, who was afterwards Marquis of Londonderry, and who after the victory of the Unionist party in 1886 became Lord-Lieutenant of Ireland. During this time and later Lady Londonderry, who was celebrated for her beauty and social charm, had many friends among the most important political personages of the time, and she was prominent in leading circles.

LONGSHOREMEN'S STRIKE. See STRIKES AND LOCKOUTS.

LOS ANGELES. See MUNICIPAL OWNER-SHIP.

LOUISIANA. POPULATION. The population of the State in 1910 was 1,658,388, and on July 1, 1919, it was estimated to be 1,912,603, a gain during the twelvemonth of 27,000.

AGRICULTURE. The following table is compiled from a report of the federal Department of Agriculture.

Crop	Year	Acreage	Prod. Bu.	Value
Corn	1919	1,850,000	32,375,000	\$48,562,000
	1918	1,800,000	28,800,000	46,368,000
Oats	1919	75,000	1,650,000	1,650,000
	1918	80,000	2,000,000	1,980,000
Hay	1919	250,000	a 450,000	10,350,000
	1918	225,000	a 292,000	6,190,000
Potatoes	1919	25,000	1,600,000	3,520,000
	1918	55,000	4,345,000	6,518,000
Cotton	1919	1,532,000	b 300,000	52,500,000
	1918	1,683,000	b 588,000	80,811,000
Rice	1919	560,000	19,712,000	53,420,000
	1918	580,000	16,704,000	32,573,000

a Tons. b Bales.

TRANSPORTATION. The railway mileage of the State on June 30, 1917, was 5316, including main track and branches. Since then 42 miles of first track, and several additional miles of second track, were built. The Texas and Pacific is the longest road in the State.

OFFICERS. Governor, Ruffin G. Pleasant; Lieutenant-Governor, Fernand Mouton; Secretary of State, James J. Bailey; Treasurer, Henry Hunsicker; Auditor, Paul Capdevielle; Attorney-General, A. V. Coco.

LOWER AUSTRIA. Before the downfall of the Austro-Hungarian empire, a crownland of Austria. Area, 7654 square miles; population, Dec. 31, 1910, 3,531,814. The Austrian subjects were placed at 3,264,110, of whom 3,130,536 were German speaking. Capital, Vienna. See AUSTRIA-HUNGARY.

LUBIN, DAVID. American agricultural specialist and merchant, died at Rome, Italy, January 1; best known as founder of the International Institute of Agriculture at Rome. He was born in 1840. For many years in business at Sacramento, California, but interested himself in improving the system of marketing agricultural products, promotion of complete and systematic statistical information, and development of rural credits, national marketing, etc. He succeeded in bringing before Congress a proposal for an international convention for the establishment of an International Commerce Commission on merchant marine (the measure passed Sept. 1, 1914); and he also secured the introduction of a measure for improving the parcel post service, facilitating direct dealing between producers and consumers (1916). His proposals for the International Institute of Agriculture were embodied in that institution, which has since supplied world crop, import and export reports, etc., and of which he was the American delegate. The treaty ratifying this project was signed by 53 nations. The King of Italy gave a building to the institution and the annual income of \$60,000.

LUDINGTON, MARSHALL INDEPENDENCE. Major-general in the United States army, died at Skaneateles, N. Y., July 28. He was born at Smithfield, Pa., July 4, 1839, and served with distinction in the Civil War, being raised in rank for faithful and meritorious service. He was in the quartermaster's department after the war and became the quartermaster-general in 1898, and major-general in 1903, when he was retired at his own request after 40 years of service.

LUMBERING. See FORESTRY.

LUTHERANS. The Evangelical Lutheran Church in America is the third largest church in the United States. Only general statistics for 1919 are available, and these show slight decreases over 1918. There were, in 1919, in the United States and Canada 3,652,010 baptized members and 2,451,997 confirmed members with 9829 ministers and 15,638 congregations. Figures for Canada for 1918 show that there were 64,490 members with 237 ministers and 827 congregations. In Canada a vast majority of the members are foreigners, largely Scandinavian, and the doctrines are taught them in 13 different languages. The following statistics are for 1918 and are the latest available.

General Council, founded in 1867, is the largest of the 14 branches of the church. There are 782,032 baptized members and 538,728 confirmed members, with 1814 ministers and 2637 congre-

gations. Their property is valued at \$36,578,422.

General Synod, founded in 1820, is the next largest with 490,900 baptized members and 374,747 confirmed members, with 1452 ministers and 1834 congregations. Property is valued at \$28,166,112.

United Synod, founded in 1886, is much smaller. There were 76,196 baptized members and 55,473 confirmed members, with 262 ministers, and 494 congregations. Church property was valued at \$3,270,949.

Synodical Conference, founded in 1872, is strongest in the Middle West. It had 1,274,142 baptized members and 823,529 confirmed members with 3278 ministers and 3843 congregations. Church property was valued at \$23,972,073.

Independent Synods. The largest of these is the Norwegian Lutheran Church in America which had 443,563 baptized members and 275,996 confirmed members, with 1240 ministers and 2811 congregations. Church property was valued at \$9,843,655. There are 16 other branches of the church, among which are the Danish Lutheran Church, Icelandic Synod, United Danish Lutheran Church, Lutheran Free Church, and many State synods.

The report of the \$500,000 Reconstruction Service Campaign to Nov. 1, 1919, shows that the campaign was over subscribed by about \$57,000. Much service is expected to be made possible by this money, and already active steps are being taken to use it for the greatest possible good.

The various branches maintain a large number of educational institutions in all parts of the country. In 1919 there were 24 theological seminaries, 39 colleges, 7 ladies' colleges and seminaries, 52 academies, 62 orphans' homes, 48 homes for the aged. Also there were 9 deaconess motherhouses, 47 hospitals, 13 hospices, 8 immigrant and seamen's missions, and 11 miscellaneous institutions.

Both foreign and home missions are maintained. The home missions include 14 Inner Mission Societies and City Missions. There are 12 American societies for missionary work in India, Burma, Japan, Liberia, British Guiana, Argentine, Teluguland, Australia, Porto Rico, China, Madagascar, Persia, and among the American Indians. In 1919 there were 394 missionaries, 2648 native helpers, 123,927 native Christians, 14,214 candidates for baptism, 42,415 pupils in mission schools, and a total income of \$696,362. Total contributions for missionary work in this country for 1918 were \$6,380,153. There are 36 European missionary societies operating in many more fields. In 1919 there were 2355 missionaries, 12,014 native helpers, 964,580 native Christians, 68,190 candidates for baptism, 230,550 pupils in mission schools, and a total income of \$3,308,500. Contributions for this work ran into very large figures. The church maintains 19 publishing houses in various parts of the country, which publish 234 periodicals, a large number being in foreign languages. The *Lutheran Year Book* is published by the United Lutheran Publication House with headquarters in Philadelphia, Pa.

LUXEMBURG. A small state of central Europe bounded by Germany, Belgium, and France; neutralized by the Treaty of London in 1867; occupied by Germany during the war; restored to independence after the armistice in 1918. See WAR OF THE NATIONS, Area, 998

square miles; population, Dec. 1, 1910, 259,891. Capital, Luxembourg, with a population of 20,848 in 1910.

HISTORY

ABDICATION OF THE GRAND DUCHESS. On the eve of the war, Luxemburg was a neutral state politically, and autonomous, but economically incorporated in the German customs union. The victory of the Allies relieved Luxemburg from its ties with Germany, and was received with rejoicing in the country. Owing to its limited extent, the duchy could not exist by its own resources, and was obliged to apply to its liberators for aid and support. There soon appeared a party of "Autonomists" who opposed the plans of the relatively small number of "Annexionists," but it was realized that the destiny of the country must be united either with that of France or Belgium. Those who favored aggressively a close alliance with France prepared a movement against the dynasty. The reigning Grand Duchess, Marie Adelaide, had given the Entente nations some grounds of complaint as showing too much favor to the German generals and their staff, and even to the Kaiser himself, and her representatives who went to Paris after the armistice were received with some coldness. A republican committee, interpreting this attitude of the Allies as directed against the House of Nassau-Braganza, organized a debate on January 9th in the Chamber on the question of government, and held a large meeting as a demonstration in favor of a republic. There was some disorder in the streets, and a committee of safety was established which organized demonstrations, and which proclaimed the advent of a new era. A considerable number of the citizens declared their adherence to this revolution. Meanwhile, French troops had occupied the country under orders to suppress any disorder, and the movement went no further than these demonstrations. This military intervention which prevented the republicans from forcing their will upon the country was made the subject of an investigation, and led to an interpellation in the French Chamber. On January 12th, the Luxemburg Parliament received the abdication of the Duchess, and named as successor, the Princess Charlotte, the next in age of the six princesses of the grand ducal family. Plans had been made for a plebiscite to be held on May 4th to decide upon the future form of government and the question of economic union with France, but it was postponed by the decision of the Chamber. A dispatch in the press of September 29th announced that the plebiscite had pronounced by four to one in favor of the existing government.

THE COUNTRY'S FUTURE. The problem of Luxemburg's future has been discussed elsewhere, and at the close of the year 1919 it was not yet decided whether it was to remain independent or form a part of France. For an understanding of the situation a brief resumé of the historical antecedents is desirable. To the French the all-important matter was a strong frontier which would guarantee the country against future invasion from Germany, and from that point of view the destiny of Luxemburg was of the greatest moment, and every point was seized upon that would justify its annexation to France. The French pointed to the historical basis of a union with France. Twice in the past, that is, from 1684 to 1697, and from 1793 to

1814 it had been under French dominion and it had barely escaped being so the third time 50 years ago, that is, in 1867. They said that its own interests should lead it to give up its independence and break with the German dynasty, the House of Nassau, whose last representative, the present Duchess, was said to have shown undue complaisance toward the foreigners who violated the territory of Luxemburg. The government had already freed itself from the Zollverein, which had made it dependent upon the German Emperor, and it had also denounced the treaty by which its railways were maintained in the German railway system. Thus it showed a disposition to rid itself of German entanglements. Its history during the last century was briefly as follows: After it was taken from France by the Holy Alliance it was given to the King of the Netherlands, then comprising Holland and Belgium, but after the separation of these two countries in 1830 the former grand duchy was divided and the House of Orange Nassau kept only a part as defined by the Treaty of London in 1839, and while France kept certain cities acquired under Louis XIV, namely: Damvillers, Mariville, Thionville, Evoy, and Montmédy; all the rest of the country remained under the old Salic law with the result that when the present Queen of Holland came to the throne, the Duke of Nassau who had been deposed by the Prussians in 1866 became the grand duke. The Salic law excluding women did not operate permanently, however, and the granddaughter of this duke was on the throne in 1910. The status of Luxemburg under the treaties of 1815 was that of an integral part of the German Confederation. The capital which had been since the beginning of the eighteenth century one of the strongest fortresses in the world, having been equipped by the genius of the great engineer Vauban, became a stronghold under the Confederation with a garrison composed of Prussians and Austrians and though the Confederation was dissolved after the battle of Sadowa, Prussia decided on its own account to maintain this fortress, claiming it by virtue of special treaties. At this time the French government was negotiating a cession of the grand duchy, which was on the point of completion, when suddenly the secret became known, the King of Holland, before signing, having had scruples on the subject and disclosed the affair to the Prussian minister at the Hague. This news caused much excitement in Germany. Although they had seen the forcible annexation of Hanover, Nassau, and electoral Hesse, they protested against this arbitrary seizure by France of a member of the Zollverein. Benningsen, supported by Bismarck, exhibited the affair in dark colors in the Reichstag. A wave of indignation passed over Germany and war for the moment threatened, but France whose best troops were at that time in Mexico, and who had only a small army without any system of reserves, was not ready for a trial of strength. She accepted therefore an intervention of the Powers which procured for her a partial satisfaction at least in the second treaty of London, which was signed May 31, 1867, and which declared Luxemburg a neutral state and required Prussia to withdraw the garrison, and provided for the dismantling of the fortress. Germany who no more regarded the neutrality of Luxemburg than she had that of Belgium, invaded the country in 1914. The

French contended that this would be repeated in the future if the only thing that stood in its way was a written agreement. Luxemburg, they said, represented a defensive line of the first importance. For the Germans, on the other hand, it was invaluable as a military base in the event of war. Under the empire and the revolutionary republic it had been called the department of forests—a name amply justified, for it was well-wooded and rugged. There were however good roads and three lines of railway, so it had been a point of advantage in German hands against the Belgian flank of Ardennes and Alsace Lorraine. The French contended that it ought not on any account to remain in the hands of a German dynasty—the only state that retained such a relation after the overthrow of so many German thrones. The French claimed more than the limits before 1870. They pointed out that this frontier had been the result of hostile interests which wished to avenge all defeats that had been undergone by Germans from the time of Louis XIV to the time of Napoleon. It was a frontier that opened the most direct ways to Paris and aside from Alsace-Lorraine it obliged France to carry on war on her own territory. It was an artificial, unnatural, and compromising frontier, and the first duty of France was to change it. Thus the French claim in Luxemburg as well as in the Rhine provinces formed a part of the programme, supported especially by the military element, which looked to complete guarantees of France for the future, and which went so far as to arouse distrust in many quarters, both in France and in the countries of the Allies, lest there should be over-reaching in the matter, and France should acquire territory by a doubtful title and thus lead to future disputes, dangerous to herself as well as to the world.

LUXEMBURG, ROSA. German Socialist, killed in Berlin on January 15th. She was associated with Karl Liebknecht as leader of the extremists or Spartacides. She early distinguished herself for her fearless and eloquent speech and radical views. At the Jena Congress in 1906 she upheld the doctrine of the general strike against Bebel, and she consistently contended for "direct action" and the seizure of power. A sentence of two months' imprisonment on the charge of inciting to violence was the result of this speech, and from that time she frequently served terms in prison. At the outbreak of the war she was serving a long sentence on the charge of defaming military officers, and though released for a short time early in 1916 was again placed under preventive arrest. Released from prison on the outbreak of the revolution, she developed views more violent even than the general run of the Spartacus group, being practically a Bolshevik in doctrine. She was described as a woman of extraordinary personality, a cripple, and less than 5 feet tall, but filled with a fiery vigor that often swept her audience away. Though reputed to have sprung from a bourgeois family, she hated the bourgeoisie with an intense fanaticism. At the Socialist congresses she was almost invariably a storm centre, and apparently took delight in stirring up scenes of excitement.

LYNCHING. The following report was compiled by Monroe N. Work, of the Department of Records and Research of the Tuskegee Institute: There were 82 lynchings in 1919, of which

77 were in the South and 5 in the North and West. This is 18 more than the number 64 for the year 1918. Of those lynched 75 were Negroes and 7 were whites. One of those put to death was a Negro woman. Nineteen, or less than one-fourth of those put to death, were charged with rape or attempted rape. Seven of the victims were burned to death. Nine were put to death and then their bodies were burned. The charges against those burned to death were: Rape, 3; murder, 2; killing sheriff, 1; no charge given, 1. The charges against those first killed and then their bodies burned were: Attempted rape, 3; shooting officers of the law, 3; rape, 1; murder, 1; incendiary talk, 1.

The offense of murder was charged against all the whites lynched. The offenses charged against the Negroes were: Murder, 13; attempted rape, 10; rape, 9; abetting riots, 4; shooting officers of the law, 4; insulting a woman, 4; killing officer of the law, 4; alleged incendiary talk, 2; writing improper letter, 2; charge not reported, 6; shooting a woman, 1; robbery, 1; murder sentence changed to life imprisonment, 1; shooting night watchman, 1; shooting and wounding a man, 1; alleged complicity in killing officer of the law, 1; killing man in self-defense, 1; killing landlord in dispute over crop settlement, 1; no charge made, 1; for being acquitted of shooting an officer of the law, 1; remarks about Chicago race riot, 1; for keeping company with a white woman, 1; for being found under bed, 1; for making boastful remarks, 1; for alleged misleading of mobs searching for another, 1; because appeal was taken from 10 years' sentence for attempting life of another, 1; for discussing a lynching, 1.

The States in which lynchings occurred and the number in each State are as follows: Alabama, 7; Arkansas, 12; Colorado, 2; Florida, 5; Georgia, 21; Louisiana, 7; Mississippi, 12; Missouri, 2; Nebraska, 1; North Carolina, 3; South Carolina, 1; Tennessee, 1; Texas, 4; Washington, 1; West Virginia, 2; Kansas, 1.

MACAO. A Portuguese dependency in China consisting of the island of the same name at the mouth of the Canton River and the two small adjacent islands of Coloane and Taipa. Area, 4 square miles. Population (Dec. 31, 1910), 74,866. The Portuguese numbered 2171 in 1910. The city of Macao is divided into two districts, each under its own administrator, inhabited respectively by Chinese and non-Chinese.

MCCAUGHEY, Sir SAMUEL. Australian sheep-raiser, died in Sydney, Australia, July 26. He was born at Ballymena, Ireland, 1835, and went to Australia in 1876. During the war he presented 20 battle planes to the government. After 1899 he was a member of the Legislative Council of New South Wales.

MCCORMICK, ROBERT SANDERSON. A member of the well-known reaper firm and former ambassador, died April 16th; born in Rockridge Co., Va., July 6, 1849. In 1889 he was appointed secretary of the American legation at London and was afterwards representative at the World Columbian Exposition. He was appointed minister to Austria-Hungary in 1901 and on July, 1902, became the first ambassador. He was afterwards ambassador to Russia, 1902-05, and to France, 1905-07.

MacDONALD, Sir JOHN HAY ATHOLE. A British lawyer and soldier, died at Edinburgh, Scotland, May 9. He was born on Dec. 27, 1836,

of a distinguished Highland family, and studied at Basel and Edinburgh universities. He entered politics at an early age and was made Solicitor General for Scotland when the Conservatives came into power in the 70's. In 1885 he was returned to Parliament for the universities of Edinburgh and St. Andrews and was appointed Lord Advocate. While in this office he carried through the important criminal procedure act which profoundly altered Scotch criminal administration. In 1888 he became Lord Justice Clerk of Scotland under the title of Lord Kingsburgh. He had been prominent as an officer in the volunteer service, and in the last decade of the nineteenth century did important work for the improvement of military drill. In addition to these activities he was an inventor of note, especially in the field of electrical appliances. Among his numerous writings may be mentioned his reminiscences as a volunteer, published in 1919 under the title of *Fifty Years of It*.

MACEDONIA. A part of southeastern Europe corresponding nearly to the former vilayet of Saloniki in the Turkish Empire and lying west and south of the Rhodope Mountains, with its southeastern part bordering the Aegean; but after the Balkan wars partitioned among Greece, Serbia, and Bulgaria, Greece receiving the largest part. The departments controlled by Greece are Saloniki, Seres, Drama, Kozani, and Florina, with a population in 1913 of 1,194,902. See WAR OF THE NATIONS.

MACKENSITE. See MINERALOGY.

MACKENZIE, JOHN EDWARD NUTT. British journalist, died in London, February 25. He distinguished himself as the Berlin correspondent of the *London Times*. He was educated at Oxford where he graduated with honors. After serving on provincial journals he studied in Germany and France and became an assistant to the correspondent of the *London Times*, later succeeding him as correspondent (1908). Before his death he was engaged on the staff of the *Times* in London.

MACKENZIE, MONTAGUE MUIR. British jurist, died at London, England, April 18. He was born in 1847, educated at Charterhouse and at Oxford, and was called to the bar in 1873. He soon acquired a large practice especially in bankruptcy cases and was for many years counsel to the Board of Trade. He was appointed Official Referee in 1905 and his decisions were much respected.

MACLAY, EDGAR STANTON. American naval historian, died at Washington, D. C., November 2. He was born in Foochow, China, in 1863, and passed his boyhood in Japan and China; then returned to the United States and studied at Syracuse University. After graduating in 1885 he applied himself to the study of foreign navies, traveling in Europe for that purpose. Finally, he produced his chief work, *The History of the Navy of the United States*, which was adopted as a text-book by the United States Naval Academy at Annapolis. Besides this he wrote many pamphlets and articles on naval subjects.

MACLAY, JAMES. Professor of Mathematics at Columbia University, New York City, died at Glen Ridge, N. J., November 28. He was born at Troy, N. Y., Nov. 6, 1864, graduated at the Columbia School of Mines in 1888, studied at Berlin for two years, and became tutor in mathematics at Columbia in 1891, and professor in

1905, holding that chair till the time of his death.

MCLEAN, THOMAS CHALMERS. Rear-admiral, United States navy, died at Utica, N. Y., August 29. He was born at New Hartford, N. Y., Oct. 25, 1847, and graduated at the Naval Academy in 1868. He became lieutenant in 1872, and lieutenant-commander in 1894. He was the executive officer of the *Detroit*, 1893-96, commanded the *Don Juan de Austria*, 1899-1901, was captain of the Navy Yard at League Island, 1903-05; commanded the *Pennsylvania*, 1905-07, and was president of the Board of Inspection and Survey from 1907 to 1909, when he retired.

MADAGASCAR. The large island off the southeastern coast of Africa, from which it is separated by the Mozambique Channel. Along with its small island dependencies (Diego-Suarez, Nossi Bé, Sainte Marie islands, and Mayotte and Comoro Archipelago), it constitutes a French colony. Capital, Antananarivo, whose population is 63,115. Area, estimated at 228,000 square miles; population, Jan. 1, 1918, 3,545,264, of whom 15,157 were French, and 3101 other Europeans. The chief tribe is the Hova, numbering 1,097,458, whose language prevails on the island. The chief port is Tamatave (population, 8647). Official schools (Jan. 1, 1918) numbered 745 with 76,243 pupils and private schools 432 with 43,994. Agriculture and stock-raising are the chief industries, and rice is the principal crop. Imports (1917), £5,470,823; exports, £3,448,318. Leading imports, cottons and clothing; leading exports, hides, wax, raffia fibre, and gold dust. Far the greater part of the trade is with France and the French colonies. The local budget estimates for 1919 balanced at 45,270,700 francs. The economic development of the colony in recent years, especially during the course of the war, is indicated by the following: The general commerce of Madagascar which in 1896 was only 17,500,000 francs, and just before the war varied slightly from a total of 100,000,000, progressed steadily from 1915, and in 1917 attained a figure of 222,000,000 francs. Figures for the years of the war were as follows: 1914, 94,039,918 francs; 1915, 109,833,460; 1916, 186,970,841; 1917, 222,978,558. Among the commodities that increased especially may be mentioned certain textiles, graphite, dry vegetables, coffee, beans, and frozen meat. Governor-general at the beginning of 1919, M. Schrameck.

During the year railway lines were under construction from Antsirabe to Tamatave on the east coast, and from the famous lake of Alaotra to Maiunga.

MADISON, WIS. See SEWERAGE.

MAGHALAES, OLYNTHO DE. Brazilian representative at the Paris Peace Conference. He was the minister of Brazil in Paris. His diplomatic career had been long and successful. He figured prominently in the negotiations with Bolivia, arising from certain Bolivian concessions contested by Brazil. Here he was successful and as the result Brazil secured compensation. He also brought about an understanding between Brazil and Argentina and secured the treaty of general arbitration with Chile.

MAHAFFY, Sir JOHN. Irish scholar, died at Dublin, April 30. For more than 30 years he had been the foremost figure at Trinity College, Dublin. He was born in Switzerland, Feb. 8, 1839, and privately educated there up to the age of 10; entered Trinity College, Dublin, in

1856, and graduated with high honors in 1859. In 1871 he was appointed professor of ancient history in the University of Dublin and held that chair for 28 years. In pursuing the study of Greek he visited Greece and the result of his personal observations may be seen in his writings. His *Classical Greek Literature*, published in 1880, has long been regarded as a standard work. His main interest was history and he returned to that subject with the publication of *The Silver Age of the Greek World* (1906), which was originally published in 1890 under the title of *The Greek World under Roman Sway*. He devoted himself to the study of texts through the influence of his friend, Professor Sayce, who submitted to him the papyri of Prof. Flinders Petrie. Mahaffy showed extraordinary ability in deciphering, and his work along this line led to his publication of the *Empire of the Ptolemies*. In the latter part of his life he gave much time to the study of the history of Ireland. In 1914 he succeeded as Provost of the university. At the time of the rebellion in 1916 he gave valuable advice to the military authorities, which together with the active service of the men of Trinity College saved property from destruction. In recognition of his aid he received the Grand Cross from the government in 1918. The list of his other writings is as follows: A translation of Kuno Fischer's *Commentary on Kant* (1866); *Twelve Lectures on Primitive Civilization* (1868); *Prolegomena to Ancient History* (1871); *Kant's Critical Philosophy for English Readers* (1871); *Greek Social Life from Homer to Menander* (1874); *Greek Antiquities* (1876) used as a school-book in France, Russia, and Hungary); *Rambles and Studies in Greece* (1876); *Greek Education* (1879); *A History of Classical Greek Literature* (1880); *Report on the Irish Grammar Schools* (1880-81); *The Decay of Modern Preaching* (1882); *The Story of Alexander's Empire* (1890); *Greek Life and Thought from Alexander to the Roman Conquest* (1887); *The Art of Conversation* (1889); *Greek Pictures* (1890); *Problems in Greek History* (1892); *Sketch of the Life and Teaching of Descartes*. He edited Duruy's *Roman History* (1883-86). Other writings and compilations are: *Alexander's Empire* (1887); *The Petrie Papyri Deciphered and Explained*; 3 vols. (viii., ix., xi.) of the *Cunningham Memoirs*, published by the Royal Irish Academy (1891-1905); *Petrie's History of Egypt*, vol. iv.: *An Epoch in Irish History* (1904); *What Have the Greeks Done for Modern Civilization?* (Lowell Lectures, 1909).

MAIL BY AIRPLANE. See AERONAUTICS.

MAINE. POPULATION. The population of the State in 1910 was 742,371 and on July 1, 1919, it was estimated to be 787,042, a gain during the twelvemonth of about 5000.

OFFICERS. Governor, Carle E. Milliken; Secretary of State, Frank W. Ball; Treasurer, Joseph W. Simpson; Auditor, Roy L. Wardwell; Adjutant-General, George McL. Presson; Attorney-General, Guy H. Sturgis; Superintendent of Public Schools, Augustus O. Thomas; Insurance Commissioner, G. Waldron Smith.

JUDICIARY. Supreme Judicial Court: Chief Justice, Leslie C. Cornish; Associate Justices, Warren C. Philbrook, Albert M. Spear, Charles J. Dunn, John A. Morrill, George M. Hanson, Scott Wilson, Luere B. Deasy.

AGRICULTURE. The following table is taken

from a report of the federal Department of Agriculture.

<i>Crop</i>	<i>Year</i>	<i>Acreage</i>	<i>Prod. Bu.</i>	<i>Value</i>
Corn	1919	20,000	1,100,000	\$2,145,000
	1918	23,000	1,035,000	1,728,000
Oats	1919	169,000	5,746,000	5,286,000
	1918	169,000	6,760,000	6,084,000
Wheat	1919	12,000	228,000	502,000
	1918	22,000	484,000	1,147,000
Hay	1919	1,120,000	a 1,456,000	27,227,000
	1918	1,108,000	a 1,274,000	17,709,000
Potatoes ...	1919	102,000	24,480,000	34,272,000
	1918	112,000	22,400,000	26,880,000

a Tons.

FINANCE. The balance on hand Jan. 1, 1918, was \$1,862,208, and on Dec. 31, 1918, it was \$1,986,494. The total expenditures during this period amounted to \$8,199,235, and the total receipts were \$8,323,521. The trust funds of the State amount to \$1,553,840.

CHARITIES AND CORRECTIONS. The State Board of Charities and Corrections has general supervision of the following institutions: State Hospital at Augusta; State Hospital at Bangor; School for the Feeble Minded, at West Pownall; Central Sanatorium for Tuberculosis Patients, at Fairfield; Western Sanatorium for Tuberculosis Patients, at Green Mountain; Military and Naval Orphan Asylum, at Bath; School for Girls, at Hallowell; School for Boys, at South Portland; Reformatory for Women, at Skowhegan; Prison, at Thomaston. See OLD AGE PENSIONS.

TRANSPORTATION. The total railway mileage in the State in 1919 was 2304. The Maine Central, and the Bangor & Aroostook are the longest roads in the State.

EDUCATION. The school age in the State is from five to 21 years. In 1919 the school population was 228,489. The following table gives additional data on education in Maine in 1919.

	<i>Elementary</i>	<i>Secondary</i>
Average daily attendance....	97,638	15,247
School enrollment	131,313	17,956
Number of teachers	4,848	849
Average salary of teachers...	\$462.46	\$857.73
Total expenditure	\$3,892,279	\$1,257,114

MAINE, UNIVERSITY OF. A co-educational non-sectarian State institution, founded in 1862 at Orono, Me. Enrollment in the fall of 1919 was 1212; there were 162 members in the faculty. Funds from the State for the year amounted to \$190,986; from the federal government, \$99,901; from trust funds, \$4000. The library contains 66,000 volumes. President, Robert Judson Aley, LL.D.

MAIZE. See CORN.

MAKINO, Baron. Japanese representative at the Paris Peace Conference. He was born in 1861; was minister to Italy in 1899, and to Vienna during the Russo-Japanese War. After that he held the portfolios of Education, 1906-08, Agriculture and Commerce, 1911-12, and Foreign Affairs, 1913-14. In 1916 he was appointed a member of the diplomatic advisory council.

MALACCA. One of the Straits Settlements (q.v.).

MALARIA. The Great War has brought malaria back to England and France, countries in which it had practically become extinct. The same possibility hardly concerns the United States, in which malaria is still endemic over large areas. To such an extent is this the case

that the Rockefeller Foundation has recently reported on the ultimate likelihood of eradicating the disease from its old strongholds in the South. The problem is stated to be purely one of economics. While in urban neighborhoods it may be approached in the double way—by warfare against the mosquitos and protection of dwellings—in rural, sparsely settled and waste lands the expense of eradicating the insect would be prohibitive in the amount of ditching, draining, and other tasks of sanitary engineering required. In such neighborhoods the only practical measures are directed to the individual and involve the abundant use of netting and window screens, with house disinfection. It is largely a matter of education and of supplying the required articles by the responsible authorities. Studies in Great Britain have already shown that the infected mosquito shuns the sanitary dwelling and settles about the old fashioned domicile with its insufficient arrangements for ventilation and light and its surplussage of hangings, closets, and needless furniture. At a session of the American Therapeutic Society last June it was pointed out that the medical men were not thorough in the use of quinine. Only enough was administered to relieve the most urgent symptoms and it did not seem to be known that it is possible to eradicate the affection by persistent systematic use of the drug. It is not generally known that malaria is really a disease of childhood and youth, few contracting it after the age of 20 years. If these young persons would take 10 grains of the drug every night for eight weeks 90 per cent of them would be disinfected, while the balance would have to continue the medication for a longer or shorter interval. It was a problem to get some small children to take quinine and many disguises were suggested for this purpose.

MALAY STATES. See FEDERATED MALAY STATES.

MALTA. An island in the Mediterranean Sea, constituting along with the islands of Gozo and Comino a British crown colony; important as containing one of the finest harbors of the world, as a port of call, and as the headquarters of the British Mediterranean fleet; strongly fortified and garrisoned. The total civil population was estimated March 31, 1918, at 224,323. Valetta is the chief town and port. In 1917-18 there were 139 public schools, with 20,149 pupils, a university with 184 students, a lyceum, two secondary and seven technical manual schools. Acreage under cultivation, 1917-18, 42,849; chief products, potatoes, onions, fruits, and grain. Imports and exports (1917-18), £2,874,420 and £610,212, respectively. Tonnage (exclusive of transports) entered, 1917-19, 563,301 (318,274 British); cleared, 590,110. Railway mileage, 8½. Governor in 1919, Gen. Sir H. C. O. Plumer.

MANCHURIA. The region belonging to China between the province of Chihli and the Amur River, which separates it from Siberia, extending eastward from the Hingan Mountains to Korea. Estimated area, 363,310 square miles. estimates of population vary from about 6,000,000 to 29,400,000. For history of difficulties with Japan over Manchuria in recent years, see preceding YEAR BOOK. See also WAR OF THE NATIONS.

MANITOBA. The most easterly of the Prairie Provinces of Canada, east of Saskatchewan

and west of Ontario and Hudson Bay, and extending from the American border northward to latitude 60°. Estimated area, 251,832 square miles; population (1916), 553,860. Chief cities with population in 1916: Winnipeg (capital), 163,000; Brandon, 15,225; Portage la Prairie, 5892; St. Boniface, 10,022. Lieutenant-governor at the beginning of 1919, Sir J. A. M. Aikins; prime minister, T. C. Norris. See CANADA.

MANURES. See FERTILIZERS.

MAP CONSTRUCTION. See ENGINEERING.

MARATHONS. See CROSS COUNTRY RUNNING.

MARIETTA COLLEGE. A non-sectarian institution of learning, located in 1835 at Marietta, Ohio. The enrollment for the fall of 1919 was 238, and there were 16 members of the faculty. A new department of geology has been established with one professor. Productive funds amount to \$591,183, and the income for 1919 was \$65,513. The library contains 82,000 volumes. There is now in progress a campaign for additional endowment of \$500,000, the income from which is to be used exclusively for increasing salaries; this drive is to finish at Commencement, June, 1920. On Oct. 17, 1919, Edward Smith Parsons was inaugurated president of the college.

MARINE DISASTERS. See SAFETY AT SEA.

MARINE INSURANCE. See INSURANCE.

MARITIME PROVINCES. The name applied to the Canadian provinces of Nova Scotia, New Brunswick, and Prince Edward Island.

MARIX, ADOLPH. Rear-admiral, United States navy, died at East Gloucester, Mass., July 11. He was born at Dresden, Saxony, May 10, 1848, graduated at Annapolis in 1868, and rose through the various grades to captain, 1903, and rear-admiral, 1908. He was judge advocate of the *Maine* court of inquiry. During the Spanish-American war he commanded the *Scorpion* and was promoted for bravery. From 1901 to 1903 he was captain of the port of Manila and he was chairman of the Lighthouse Board from 1907 to 1910, when he retired.

MARQUETTE UNIVERSITY. An institution of learning conducted under the auspices of the Catholic Church, at Milwaukee, Wis. The summer school contained 136 students, while the enrollment for the fall was 3044. The faculty numbers 250. The library contains 30,000 volumes. Productive funds of Marquette amount to \$80,000, and the income for the year was \$300,000. During the year the University received \$333,333 from the Carnegie Foundation, and also shared in the campaign of the Wisconsin Christian Colleges, Associated. Marquette was founded in 1864. President, Rev. Herbert C. Noonan, S.J.

MARTIN, THOMAS STAPLES. United States Senator, died at Charlottesville, Va., November 12. His death was followed immediately by an adjournment of the Senate and by a eulogy by one of his former colleagues. He was born at Scottsville, Va., July 29, 1847, and educated in the schools of Virginia, but at an early age joined the Confederate army. After the war he was for two years at the University of Virginia and then studied law, being admitted to the bar in 1869. Although not well known to the general public, so late as 1893, he ran against the popular favorite, Maj.-Gen. Fitzhugh Lee, as candidate for the United States Senate, and

defeated him. He took his seat in the Senate in 1895 and was reelected successively for three terms. In Washington he showed himself a conscientious and industrious worker and was much respected by his colleagues. In the spring of 1918 he became floor leader of the minority. In politics he was described as a progressive Democrat of the old school. He served as chairman of the Appropriations Committee during the War of the Nations.

MARTINIQUE. An island in the Lesser Antilles; a French colony. Area, 385 square miles; population (1916), 193,087. Capital, Fort de France, with a population of 26,399. Imports (1917), 56,569,283 francs; exports, 81,392,263, rum and sugar being the chief exports. It is under a governor and a general council.

Foreign trade, 1918, \$20,375,247, a decrease of \$6,258,356, compared with 1917. Imports, \$10,570,794, exports, \$9,804,453. The commerce consists mainly of agricultural products, the chief ones being sugar, rum, cacao, and pineapples. In 1918 the United States contributed 50 per cent of the imports. The import trade with France (1918) declined to only 11 per cent, though before the war France had supplied more than 50 per cent of the imports.

MARYLAND. POPULATION. The population of the State in 1910 was 1,295,246, and on July 1, 1919, it was estimated to be 1,395,405, a gain during the twelvemonth of about 11,000.

AGRICULTURE. The following table is compiled from a report of the federal Department of Agriculture.

Crop	Year	Acreage	Prod. Bu.	Value
Corn	1919	693,000	28,413,000	\$39,778,000
	1918	686,000	24,010,000	32,414,000
Oats	1919	65,000	1,820,000	1,492,000
	1918	60,000	1,980,000	1,703,000
Wheat	1919	790,000	10,665,000	22,930,000
	1918	732,000	11,346,000	24,848,000
Tobacco	1919	29,000	19,575,000	5,872,000
	1918	32,000	26,560,000	7,968,000
Hay	1919	450,000	6,630,000	15,120,000
	1918	455,000	6,614,000	16,455,000
Potatoes	1919	55,000	5,170,000	6,721,000
	1918	53,000	4,240,000	5,088,000

a Pounds.

CHARITIES AND CORRECTIONS. The Board of State Aid and Charities has general supervision of all public charitable institutions, and regulates the State aid to many private institutions. The following is a list of the public institutions of the State with situation, amount of State aid, and date of establishment:

Workshop for the Blind; Baltimore; \$3 per man; 1908. School for the Deaf; Frederick; \$45,965; 1867. Rosewood State Training School; Owings Mills; \$150,200; 1888. Home and Infirmary of Western Maryland; Cumberland; 1892. Hospital for Consumptives; Towson; \$25,000; 1906. House of Correction; * Jessups; \$85,917. House of Reformation; Cheltenham; \$15,000. Industrial Training School for Girls; Baltimore; 1918. Industrial Home for Colored Girls; Melvale. Spring Grove State Hospital; Catonsville; \$128,500. Springfield Hospital for the Insane; Sykesville; \$180,000. Hospital For Negroes; Crownsville; \$65,000. Training School for Boys; Loch Raven. St. Mary's Industrial School for Boys; Baltimore; \$30,000; 1908. Tuberculosis Sanitarium; Sanitarium; \$164,200. Eastern Shore State Hospital; Cambridge;

* Under the control of the State Board of Prison Control, created in 1916.

\$40,644. Penitentiary; * Baltimore; \$45,000. Pine Bluff Sanitarium; Salisbury; \$8245.

FINANCE. The balance in the treasury, on Oct. 1, 1918, was \$2,414,237 and on Sept. 30, 1919, it was \$3,018,617. The total receipts during this period were \$13,128,211 and the disbursements amounted to \$12,537,881. Quoting from the report of the Comptroller, for the year ending Sept. 30, 1919: "The fiscal year 1919 is unique in the fiscal affairs of this State, inasmuch as it marks the establishment of the Budget System. . . . I take this occasion to call your attention to what I believe is the most necessary thing in public life to-day, viz: Economy. The cost of government to the citizens of the United States is so enormous that, from my viewpoint, the present high cost of living is, to a great extent, caused by this condition." The Comptroller then goes on to estimate this cost as follows: for the Federal government, \$50 per capita; for the support of the State government, \$7 per capita; county government, \$6; cities, from \$5 to \$12 per capita. As the average family in Maryland is 4.5 he estimates the cost per family, of more than \$300 for governmental purposes in 1920.

TRANSPORTATION. The total mileage of first line track in 1919 was 1409. The Baltimore & Ohio and the Philadelphia, Baltimore & Washington are the longest roads.

OFFICERS. Governor, Emerson C. Harrington; Secretary of State, Thomas W. Simmons; Comptroller, Hugh A. McMullen; Treasurer, William P. Jackson; Adjutant-General, Henry M. Warfield; Attorney-General, Albert C. Ritchie; Superintendent of Public Schools, M. Bates Stephens; Auditor, J. Enos Ray, Jr; Bank Commissioner, J. Dukes Downes.

JUDICIARY. Court of Appeals: Chief Judge, Andrew H. Boyd; Associate Judges, John R. Pattison, Albert Constable, Nicholas C. Burke, William H. Thomas, Hammond Urner, John P. Briscoe, Henry Stockbridge; Clerk, C. C. Magruder.

MARYLAND, UNIVERSITY OF. A non-sectarian co-educational institution, founded in 1874 at Annapolis and Baltimore, Md. St. John's College, at Annapolis, is the liberal arts branch of the university. The other schools are law, medicine, pharmacy, and dentistry.

MASCAGNI, PIETRO. See *MUSIC, Italy*.

MASON, JOHN. Actor, died at Stamford, Conn., January 12. For many years he was among the leading actors in successful plays, especially in comedy. He was born at Orange, N. J., Oct. 28, 1858, and made his first appearance at the age of 20 years at Philadelphia. The plays in which he appeared are too numerous to mention, but among those in which he was especially successful was *The Witching Hour*, 1907-08, in which he played the principal part. In 1911-12 he starred in *As a Man Thinks*. Though his acting did not indicate wide range or versatility, it was thoughtful and sympathetic and always maintained a high level.

MASSACHUSETTS. POPULATION. The population of the Commonwealth in 1910 was 3,344,516 and on July 1, 1919, it was estimated to be 3,889,607, a gain during the twelvemonth of about 57,000. By the State census of 1915 the population was 3,693,310.

AGRICULTURE. The following table is compiled

* Under the control of the State Board of Prison Control, created in 1916.

from a report of the federal Department of Agriculture.

Crop	Year	Acreage	Prod. Bu.	Value
Corn	1919	44,000	2,640,000	\$4,541,000
	1918	45,000	2,340,000	3,978,000
Tobacco	1919	10,000	a 15,400,000	7,130,000
	1918	10,000	a 15,000,000	6,000,000
Hay	1919	410,000	b 656,000	17,712,000
	1918	410,000	b 492,000	12,792,000
Potatoes	1919	33,000	2,970,000	5,643,000
	1918	34,000	4,522,000	7,687,000

a Pounds.

TRANSPORTATION. The total railway mileage in 1919 was about 4976 miles; of this approximately 2141 was main line track. The longest roads were the Boston and Albany, the Boston and Maine, and the New York, New Haven, and Hartford.

LEGISLATION. The general and special acts and resolves passed by the Legislature during the session of 1919 made over 250 pages. Included are the following laws. Absentee voting is made possible, both for those in military or naval service, and others who make the proper arrangements with the election officers. Early in the session an act was passed declaring that all acts approved by the executive, shall, unless subject to referendum or declared to be emergency measures, take effect 30 days after formal enactment. Emergency laws take effect upon passage, and many of these were passed during the session. The maximum amount of deposit in savings banks was raised to \$4000. An act was passed enabling manufacturing corporations to provide for representation of their employees upon the board of directors, by means of a vote of more than half of those employees eligible, and by secret ballot. The hours of labor of women and children under 18 was fixed at nine per diem, or 48 per week, except in seasonal employments, where the average for the year cannot exceed 48 per week. The time of employment and other exceptions to the general rule are strictly controlled by the State Board of Labor and Industries. The amount of light in public dance halls, when dancing is under way, is henceforth to be determined by the chief of the district police. Provision is made for distribution by the Secretary of the Commonwealth of arguments pro and con measures to be submitted to the electorate under the referendum.

Massachusetts now has the following "Red Flag" law: "Any person who shall by speech or by exhibition, distribution or promulgation of any written or printed document, paper or pictorial representation, advocate, advise, counsel or incite assault upon any public official or the killing of any person or the unlawful destruction of real or personal property or the overthrow by force or violence of the government of the commonwealth, shall be punished. . . . Any person apprehended by a sheriff, deputy, . . . or police officer in violation . . . may be arrested without a warrant."

Industrial accident compensation was increased. The powers of cities and towns relative to public provision of recreation and playground facilities, were enlarged. The Legislature, over the veto of Governor Coolidge, raised their salaries from \$1000 per session to \$1500, at the same time increasing the traveling expenses of \$2.50 per mile from their homes to Boston, which had until now been law, to \$3 per mile, and including employees of the Legislature. Preference in employment of mechanics, teamsters and laborers

in the construction of public works is made as follows: first, citizens of Massachusetts veterans in the War; second, citizens of Massachusetts; third, citizens of the United States. Registration for primaries, caucuses and elections was further controlled.

The following law relates to the present H.C.L. "Maintaining or increasing unreasonably the price of any necessary of life is hereby declared to be unlawful. Whoever . . . enters into any agreement . . . to maintain or cause to be maintained or increased unreasonably the price of any necessary of life shall be deemed guilty of criminal conspiracy. . . ." To oversee the execution of this act there was established a Commission of the Necessaries of Life.

A law was enacted regulating the use of aircraft. The income tax was revised, as was that concerning corporations; also general changes were made in the tax laws, and a proposed amendment to the State Constitution enlarging the powers of taxation was referred to the Legislature of 1920, to be placed before the people if agreed to by that Legislature.

The most interesting act was that reorganizing the executive and administrative functions of the State government. Under this new law, approved July 23, 1919, there are established in addition to the Governor and his council, the secretary, the treasurer, the auditor, and the attorney-general, the following departments: agriculture, conservation, banking and insurance, corporations and taxation, education, civil service and registration, industrial accidents, labor and industries, mental diseases, correction, public welfare, public health, public safety, public works, and public utilities. A Metropolitan District Commission was also authorized, to have general supervision over the metropolitan area. The law is elaborate in its provisions concerning the organization and powers of all these departments.

Commissions were established of Foreign and Domestic Commerce, on Judicature, on Soldiers and Sailors, and on uniform State laws.

OFFICERS. Governor, Calvin Coolidge; Lieutenant-Governor, Channing H. Cox; Secretary of the Commonwealth, Albert P. Langtry; Treasurer, Charles L. Burrill; Attorney-General, Henry C. Atwill; Auditor, Alonzo B. Cook.

JUDICIARY. Superior Court of Judicature: Chief Justice, Arthur Prentice Rugg; Justices, Charles F. Jenney, Henry K. Braley, Charles A. DeCourcy, John C. Crosby, Edward P. Pierce, James B. Carroll; Clerk, Clarence H. Cooper. See MINIMUM WAGE; OLD AGE PENSIONS.

MASSACHUSETTS INSTITUTE OF TECHNOLOGY. A non-sectarian technological institution of learning located at Cambridge, Mass. The enrollment for the summer of 1919 was 981 and for the fall, 3073. There are 125 members in the faculty. The productive funds amount to \$9,500,000, and the income was \$430,000. The library contains 132,921 volumes and 49,551 pamphlets. The institute was founded at Boston in 1861 and in 1916 moved to the Charles River. President, Richard Cockburn Maclaurin, LL.D.

MASSEY, WILLIAM FERGUSON. New Zealand representative at the Paris Peace Conference. He was at that time serving as Prime Minister of New Zealand. He was born in Ulster, Ireland, and became a successful farmer in New Zealand, where he was leader of the Con-

servative party before the war. When the war broke out he was Prime Minister, and immediately showed his loyalty by offering a division of New Zealand troops to the imperial government. In 1915 a coalition with the Liberal party under Sir Joseph Ward was formed, known as the National Ministry. Mr. Massey attended the imperial War Cabinets in England in 1917 and 1918.

MATCHET, CHARLES H. American Socialist, died at Allston, Mass., October 23. He had been Socialist candidate for President in 1896, and before that had been the candidate for Vice-President on the first ticket ever put up by a Socialist party in a national campaign. He was born at Needham, Mass., May 15, 1843; was four years a sailor in the United States navy, and was afterwards engaged in various mercantile employments, finally becoming an electrician. Besides his candidacy for the presidency and vice-presidency, he had been the nominee for Mayor of Brooklyn, for Governor of New York, and for the New York Court of Appeals in 1903-04.

MATERNITY INSURANCE. See SOCIAL INSURANCE.

MATSUI, Mr. Japanese representative at the Peace Conference. He was at that time Japanese ambassador to France. He was born in 1868, entered the diplomatic service in 1890, and served in the legations at Washington, London, and Peking. In 1912 he was the vice-minister for foreign affairs and in 1915 appointed ambassador in Paris.

MAURITANIA. A special "Civilian" territory of French West Africa under a commissioner of the government-general of French West Africa. Area, 344,967 square miles; population, about 256,000, mostly Moorish Mohammedans.

MAURITIUS. An island in the Indian Ocean, about 500 miles east of Madagascar; a British crown colony. Area, about 720 square miles; population, estimated Jan. 1, 1918, 384,951. Capital, Port Louis, with a population in 1911 (with suburbs) of 50,060, mainly Indian and Chinese. Sugar cultivation is the staple industry. The 1919-20 sugar crop was estimated at 242,000 metric tons, compared with 252,770 tons in 1918. Export of sugar, 1917, £3,635,949. Total imports (1917), £2,813,280; exports, £4,128,381. Revenue, 1916-17, £922,937; expenditures, £874,551. Tonnage entered, 1917, 288,320; cleared, 304,534. Governor at the beginning of 1919, Sir H. Hesketh Bell.

MAYFLOWER, TERCENTENARY OF. See CELEBRATIONS.

MAYOTTE AND THE COMORO ISLANDS. An archipelago belonging to France and administered by the governor-general of Madagascar. Area, 837 square miles; population estimated at 97,900.

MEAT. See LIVE STOCK.

MEAT, PRESERVATION OF. See CHEMISTRY, INDUSTRIAL.

MECHLENBURG-SCHWERIN. Formerly a grand duchy and constituent state of the German Empire. The throne was vacated in November, 1918. For statistics, see preceding YEAR BOOKS.

MECHLENBURG-STRELITZ. Formerly a grand duchy of the German Empire; proclaimed a republic in November, 1918. For statistics, see preceding YEAR BOOKS.

MEDICAL PROGRESS. The year 1919 saw

the aftermath of the great pandemic of *influenza* which prevailed with its original deadliness in a few countries but was chiefly replaced by the ordinary endemic winter grippé. In regard to recrudescences there have been rumors of new outbreaks in remote countries during the past Fall but nothing official as yet. The year has seen the stamping out of the last case of *yellow fever* (in Guatemala and Ecuador) but the malady may reappear at any time and strenuous preventive efforts are being made in some of the countries where its reappearance might ordinarily be anticipated. A study of *bubonic plague* during the past two years has shown conclusively that it is absolutely distinct from *influenza* and that aside from a similarity in the fatal pneumonias which complicate or constitute the two disease processes the two plagues are radically distinct, *influenza* constituting by far the greater menace even in countries ravaged by the *bubonic* disease. The menace of *typhus* as a result of the war has been slight outside of a certain zone and should the disease ever reach us it would doubtless be in a mild form. As a matter of fact under the name "Brill's Disease" it has probably been with us for a quarter century without constituting a menace at all. The white plagues of *cancer* and *tuberculosis* continue to destroy many thousands of lives annually—about 250,000 in the United States alone—and as social diseases not much headway has been made against them. Radioactivity holds out some promise for the former while as for *tuberculosis* we now know that it is very common and almost universal in mild and masked, or recovered forms and that to this fact we owe the immunity of the great bulk of the populace who have received a protection similar to that afforded by vaccination. The hardships of the war have made the subject of *nutritional* and *deficiency* diseases of great importance so that affections like *beri beri*, *scurvy*, *pellagra*, etc., on the one hand and *diabetes* and *corpulescence* on the other have taken on new interest. The privations of the war have reduced the number and severity of *diabetic* cases and while in theory the group of *deficiency* diseases should have been aggravated this has not been strikingly the case. The most active subject now before the profession is the knowledge of the *internal secretions* and the part they play in both causing and curing disease. The effects of *alcohol* and *drugs* under the restrictive legislation is being watched with interest. See SOCIAL HYGIENE.

It is still much too early to sum up succinctly the degree of medical progress expected to accrue to civil practice from military experience. The expected mobilization of contagious diseases as a result of returning troops and repatriation of civilians has not yet materialized nor has our knowledge of the sum of morbidity due to underfeeding been made available. The subject of MEDICAL PROGRESS will be found under the following heads: ALCOHOL AND MEDICAL PRACTICE; APPENDICITIS; AUTOTHERAPY; BUBONIC PLAGUE; BRIGHT'S DISEASE; CANCER; DEFICIENCY DISEASES; DISEASES OF NUTRITION; DRUG ADDICTION; FOOD POISONING; INFLUENZA; INSANITY; MALARIA; ORGANO-THERAPY; PSYCHOTHERAPY; RHEUMATISM; SHOCK; SLEEPING SICKNESS; TUBERCULOSIS; TYPHUS AND TYPHOID FEVERS; and YELLOW FEVER.

MEMORIAL BUILDINGS. See ARCHITECTURE.

MERCIER, CARDINAL, Primate of Belgium, distinguished for his services to his countrymen during the war, visited the United States in September, arriving at New York September 9th. The circumstances of his sacrificing career, widely reported in the press throughout the war, may be briefly resumed here. Soon after the German invasion the Cardinal in the course of an address to his congregation said that every one should have regard for the general interest in dealing with the persons who held the country under their military power, and should respect the regulations that they imposed upon them so long as they did not interfere with their freedom of conscience as Christians, and their dignity as patriots. In October, 1914, the Belgian army, driven back from Antwerp, was stationed on the Yser and the King was separated from his people. It was at this time that the Germans deported M. Max, the Burgomaster of Brussels, and Cardinal Mercier was left alone as the spokesman for the Belgian people. In his Christmas address of 1914, he said that the duty of Belgians might be summed up in two words, patriotism and endurance; that he fully appreciated the sufferings of the country and the feelings of wounded patriotism. He declared that a country was not a mere collection of individuals inhabiting the same region, but was an association of souls, and that Belgium was bound to defend its independence. Germany had broken her oath. The rights of conscience were sovereign and it would have been unworthy of the Belgians if they had not resisted. Belgians were proud of their glorious attempt to hold back the Germans. In 1916, in the presence of the enemy, who were listening, the Cardinal declared that the hope of final victory was more than ever fixed in his mind, and that Belgians would certainly gain it in the end. They must prepare for it, he said, by patience and sacrifice, and he reminded his hearers of the overthrow of great forces in the past by means that seemed almost supernatural, when they had violated right. In all his addresses he maintained this courageous and devoted attitude, and more than that he intervened on behalf of his people, and on numberless occasions prevented the commission of crimes by the Germans. His moral authority was everywhere felt. He visited the devastated cities and called upon the humblest subjects, restoring confidence to those in despair. His vigorous words on many occasions struck home to the Germans and yet they did not dare to arrest him. In his famous pastoral letter he dared to say in plain words that Germany had violated her word and he declared to the members of his diocese that they must not renounce any of their patriotic hopes, and that he felt it his duty to explain to them the obligations of conscience in the presence of the power that had invaded their soil; that this power had no legitimate authority and that they did not owe it in their inmost soul any obedience. He declared plainly that the only legitimate power in Belgium was that which belonged to their King and government as representatives of the nation, and that the acts of the invaders would be without authority in the long run, while the legitimate authority tacitly ratified the cause of those whom public interest justified. He made the boldest possible use of his ecclesiastical authority to maintain the independent spirit of the Belgians throughout the period of the German occupation

and contributed more than any one to their firmness and courage under German tyranny.

MESOPOTAMIA. See **TURKEY** and **WAR OF THE NATIONS**.

METALLURGY. When the financial and economic conditions of 1919 and the position of the various metals in the world's commerce are considered, it is not difficult to appreciate the fact that the year was marked by comparatively few important metallurgical developments. Increasing costs of labor and materials were experienced universally, and as a result much metallurgical work aimed at reducing operating expenses. Gold mining in particular felt the increased costs and there were few if any mines in 1919 working to capacity. In South Africa mining conditions were affected by reduced hours of labor and this too was leading to the consideration of mine and metallurgical economies. The **YEAR BOOK** as usual presents herewith some of the more significant features of metallurgical progress during the year based in large measure on the authoritative reviews in the valuable annual numbers of the *Engineering and Mining Journal* (New York), and the *Iron Age* (New York).

FLOTATION. Comparatively little progress was made during the year in the development or the improvement of the flotation process which continued in wide use, extending its range in many directions. The progress in establishing the legal status of the various patents advanced further, and one of the important decisions was that of the U. S. Supreme Court that the use of more than 20 pounds of oil even in connection with violent agitation did not infringe the U. S. patent of Nov. 6, 1906, owned by the corporation which held the American patents of Minerals Separation, Ltd., although the use of a smaller quantity did constitute such a violation. The controversy regarding the air machines without mechanical agitation continued without final settlement though a decision had been rendered in favor of the Mineral Separation interests on May 25, 1917, by the U. S. Circuit Court of Appeals at Philadelphia. Certain modifications were made in the machinery about which there was a difference of opinion as to whether it did away with the infringement or not. Mechanical agitation in one form or other was being increasingly employed either by the payment of royalties or by the use of modified machines. There were two general types of machines in use; the air machines with bottoms of various types and the impeller machines; the latter being used generally where the process was practiced without the aid of concentrating tables or vanners.

As flotation was apt to fail with oxidized copper ores leaching was resorted to and flotation was used for the flotation of the sulphides after fine grinding of the leached tailings. Improved concentrators for use in connection with flotation processes were made or designed, while attempts also were made to reduce the air consumption and thus the power consumption of the flotation machine. Various experiments involving the use of alkali were also under way during the year, while preferential and differential methods were being tried. New flotation agents still were under investigation and development and in some cases these had passed from the laboratory into experimental practice.

GOLD AND SILVER. The cost of supplies and labor together with the increased value of silver

led to modifications in the metallurgy of gold and silver. With such chemicals as cyanide and quicksilver doubled or trebled in value, there was need of economy, while with silver at \$1.35 an ounce there was distinctly an object in treating silver tailings that once were neglected and wasted. Along with these considerations there was increased cost of fuel and of iron and steel for machinery or replacements. In the case of some high grade silver ores at Cobalt the high cost of mercury led to the abandonment of amalgamation for cyaniding after a preliminary treatment with bleaching powder in the tube mill. This process showed a substantial saving over amalgamation with the cost of mercury reaching \$130 per flask of 75 pounds.

For coarse crushing a gyratory crusher with receiving openings 60 x 190 inches was constructed during the year and said to be the largest in the world. A high speed gyratory crusher was placed on sale during the year but for intermediate crushing rolls were being employed and these were employed to furnish the product for the ball mills which did not seem so suitable for all crushing and grinding as some engineers had imagined.

COPPER. With a slack condition in copper production during the year in the United States attention was directed to South America where there was considerable new smelter construction in progress and it was thought by many that the Andes Mountains would experience a boom similar to that witnessed in Arizona. Four of the world's leading copper companies were engaged in the design or construction of new mills, and it was apparent that in them the most modern methods would be introduced. In the United States the modernization of plants in the Lake Superior district was under discussion with the aim among other objects of improving smelting processes.

In the United States, Mexico, and Canada, there were 11 smelters in 1919 having a capacity of 1,000,000 tons per year or more. Of these, eight had an annual capacity of at least 1,500,000 tons and ranked in order as follows: Anaconda Copper Mining Co., at Anaconda, Mont.; American Smelting and Refining Co., at Garfield, Utah; Copper Queen, at Douglas, Arizona; Calumet and Arizona Mining Co., at Douglas, Ariz.; Granby Consolidated M. S. & P. Co., at Anyox, B. C.; International Nickel Co., at Copper Cliff, Ont.; Cananea Consolidate Copper Co., at Cananea, Mex.; United Verde Copper Co., at Clarkdale, Ariz.

Special consideration was given during the year to the fact that Lake copper costs more to produce and refine than that from the deep mines of the West, and therefore metallurgists were called upon to install labor saving devices and improve processes. Smelting in small furnaces had been attended by high labor costs and loss of copper in the slag and improvements were called for. In Alaska at the Kennecott Copper Corporation and at the Calumet & Hecla in the Lake Superior District the use of an ammoniacal solution for leaching copper ore was established on a commercial basis, but while the sand could be treated with success the slime was not so readily handled and the Calumet & Hecla Co. was using a flotation process in a newly erected plant. With the combined leaching and flotation plants a daily capacity of 5000 tons of normal tailings and 3000 tons of accumulated

tailings could be handled. Both these processes were under experiment at other plants in the Lake Superior District and from their use it was hoped to reduce losses to a low point. At the West Norfolk plant of the Virginia Smelting Co. where scrubbing plants had been installed to treat waste gases it was found possible to produce on a commercial basis liquid sulphur dioxide and this has become an important by-product. A similar method was employed at the Tacoma Smelter of the American Smelting and Refining Co. and the liquid sulphur dioxide was readily disposed of to paper mills and sulphuric acid plants using the contact method. Thus not only is vegetation preserved in the neighborhood of smelters where ores containing considerable sulphur are treated, but a useful by-product is secured.

In blast furnace operation powdered coal was used increasingly during the year and experimental work to secure increased efficiency was under way using mixture of coal and coke. In copper reverberatory furnaces oil was being used for fuel in several large plants.

At Anaconda a new Cottrell plant for catching fumes and dust was started during the summer of 1919, while in a small installation with a plate treater at Tooele, Utah, it was possible to catch 90 per cent of the dust passing a dust chamber.

LEAD. There was decreased production of lead in 1919 and limited working of the various plants, with concentration of refining at the larger central works. Some plants sought to repair their equipment overworked during the war but there were few new installations involving departures in apparatus or methods of operation. In lead blast furnaces as in those for copper ores fuel dust was being used to replace part of the coke and blown in through the tuyères along with the air and successful results of the experiments were reported.

ZINC. Where favorable conditions existed electrolytic extraction of zinc was accepted as desirable practice though it was not found universally applicable and certain war plants were unable to continue under peace conditions. At the Risdon, Tasmania, plant of the Electrolytic Zinc Company Proprietary of Australasia, Limited, where 3822 tons of slab zinc had been produced in the year 1918 the decision was made to abandon the existing plant for one to be constructed in 1920 10 times as large. In British Columbia at Trail and in the United States at Great Falls, electrolytic capacity had been well established. In Scandinavia the electrothermic smelting of zinc was possible by the low cost of electric energy. In Belgium zinc smelting has been resumed while in Germany the extensive war production was seriously curtailed. In Great Britain attempts to establish zinc smelting were abandoned, but plans for important plants in India were under discussion. There was considerable development in metallurgical practice during the war, and metallurgists were anxious to study what was done in Germany. Naturally the zinc-lead ores and the low grade ores were receiving attention from American metallurgists and various combined or coordinated methods often to be operated on a large scale were proposed. In some cases these methods might be related in a way to electrolytic extraction, but in any case there was a tendency

to seek to increase the production of zinc through the less valuable ores.

IRON AND STEEL. There were few new or striking developments in the metallurgy of iron and steel in 1919, and these for the most part represented advances in individual plants designed to secure better practice and more efficient working according to the best modern methods. By modifying the design of the blast furnace so as to secure steeper bosh angles and a wider hearth it was found that greater tonnages could be handled and better operation secured. The steepest angle used was 82 degrees 10 minutes, and while there was a difficulty with some of the wider hearths to restore a furnace to temperature in case the hearth got cold, yet there were evidences of a tendency towards a further increase in the bosh angle until the bosh and even the shaft itself might be straight.

The use of tar and coke oven gas combined as fuel in the open hearth process was a development of the year, due to the fact that the extraction of benzol from the coke oven gas required its enrichment by hydrocarbons in order to restore its illuminating power. This is necessary as the heat transmitted to the bath of molten steel depends upon radiation and the high calorific power of the coke oven gas is not of itself sufficient once the benzol is extracted. Combined with the tar however there is secured both calorific value and radiating power and the heavy gas is readily deflected downward over the bath. This was being accomplished with facility by a special combination burner which properly distributed the combined gas to the furnaces.

The duplex process where acid-Bessemer converters were employed with tilting or stationary open-hearth furnaces continued in increased use and possessed the important advantage in 1919 of being distinctly economical of labor, the production per man being more than twice that of the straight open hearth process. Where there was sufficient blast furnace capacity and iron costs were low especially the scrap iron employed in mixture with the pig, the duplex process was most advantageous and in several American plants in 1919 it was the only way in which production could be maintained.

The manufacture on a large scale of ordnance during the war led to an increased production of acid open-hearth steel inasmuch as it was considered to afford better gun forgings than the basic steel, but other advantages were not so apparent that it was likely to retain this temporary position in the American steel industry generally.

The electric steel furnace in 1919 was in large measure replacing the older crucible process as it could produce a quality of steel equal to crucible steel, and for steel for automobiles and fine tools it was supplementing the open hearth process in the production of high quality steel. The electric furnace promised to play an important part in the reconstruction of destroyed French and Belgian plants where the pig-iron from local ores contained a high percentage of sulphur. In as much as the steel produced in pre-war days by the basic Bessemer process was not of the best quality on account of the ore, it was being considered in the redesign and rebuilding of the plants whether it would not be desirable to employ electric furnaces of large capacity to which the product of a basic Bessemer converter could be duplexed.

The shortage of coal in Europe naturally led to the extension of electro-metallurgical processes wherever power was available and while in Scandinavia the electric reduction of iron ores to pig iron not only was on a firm commercial basis but considerable extension of such electrical plants was under way. At Lulea six 2500 k.w. furnaces were in course of erection in 1919 and this was but an example of similar activity. In fact it was considered quite probable that no more iron blast furnaces would be built in Sweden.

An interesting development of the war was the production of "Synthetic Cast Iron" made from steel turnings by melting in an electric furnace in contact with coke. Over 150,000 tons of this product were produced in France by a single company operating three works, and the process was considered remarkably useful. To reduce the conductivity of the mixed charge of steel turnings and coke, and at the same time to desulphurize the metal, basic slag is mixed with the charge. Carburization of the iron begins well before fusion, but increases much more rapidly as the melting temperature is approached, and complete carburization is obtained upon melting. In case the raw material used is too high in phosphorus, dephosphorization must be carried on in an electric furnace with partial carburization, and the remaining carburization then is accomplished in an open furnace. By this process power consumption is more than doubled, and iron of a very high degree of purity is obtained. This process was discussed at considerable length by C. A. Keller at a meeting of the Iron and Steel Institute of Great Britain in September, 1919.

The electrolytic refining of iron on a commercial scale was under way in France in 1919. A new process for the electro-deposition of iron in the form of bars and boiler tubes was developed in France and Switzerland, and employed a ferrous chloride electrolyte, a rotating cathode, and a special depolarizing agent. It used a current of about 1000 amperes per square meter and to produce one ton of finished tubes there was required an electric power consumption of $\frac{1}{2}$ horse power per year. Any kind of scrap iron or steel can be used, and while tubes as they come from the mandrils are brittle, the hydrogen can be removed by annealing and a pure and ductile product secured.

Electric furnaces also figure to an increased degree in various processes for automatically heating, hardening, and tempering steel. Here exact temperature control was an important consideration and more accurate regulation of heat was possible than with other types of furnaces.

The electric furnace also made progress during the year in the treatment of the non-ferrous metals. An added reason was the increased cost of crucibles and the further fact that even at twice the expense they were not as lasting as those built a few years previously. In Bridgeport, Conn., alone 50 or more electric brass furnaces had been installed and America was developing extensively this new field of metallurgy.

METALS. See CHEMISTRY, INDUSTRIAL.

METEOROLOGY. The activities of meteorologists throughout the world have undergone remarkable developments and readjustments during the last two or three years. These changes were hastened by the war, but some of them would in any case have come to pass in the

course of time. Meteorology, as an applied science, has necessarily enlarged its outlook to take account of the rapid expansion of aeronautics. The weather reports and forecasts that serve the needs of agriculture, marine navigation and other pursuits upon the surface of the globe are not fully adapted to the requirements of aeronauts. The development of appropriate aeronautical weather services is now in course of realization in nearly all civilized countries. A notable consequence of the war was the addition of meteorological work to the routine activities of armies and navies. Military establishments will henceforth include meteorological units, in peace as well as in war. Apart from the results of the war, rapid progress has been made in the applications of meteorology to agriculture, commerce, industry and other interests. Hence this science, which was formerly a somewhat narrow specialty, now appeals to a wide circle of workers and students.

Two illustrative facts may be cited in this connection: 1. In February, 1919, the U. S. Bureau of Education, at the suggestion of the Weather Bureau, addressed a questionnaire to American universities and colleges in order to ascertain the amount of instruction in meteorology given in such institutions. Replies received from 433 institutions show that 70 of them offer distinct courses in meteorology or climatology, while 83 teach these subjects in connection with more general courses. A few years ago collegiate instruction in meteorology was a rare exception in this country, and, indeed, in every country except Germany. 2. The American Meteorological Society, projected by Dr. C. F. Brooks, was organized in December, 1919, and at the close of the year about 600 applications for membership were pending. Until recently it has been believed that a national meteorological society in the United States would be little more than a replica of the staff of the Weather Bureau, and that therefore such an organization was superfluous.

Space is not available here to record all the changes that have lately taken place in weather services, with respect to their duties and their affiliations, but the following may be mentioned as especially significant:

Under the auspices of the International Research Council there was established at Brussels, in July, 1919, an International Union of Geodesy and Geophysics, one section of which is to be devoted to meteorology. Side by side with this new body, the old international organization of official and quasi-official meteorological services has decided to perpetuate its existence. After a preliminary meeting of certain members of the old International Committee, held in London in July, a larger conference was convoked in Paris, Sept. 30-Oct. 6, 1919, at the invitation of the French government. At the latter meeting it was decided to hold conferences of directors every six years, and to renew the International Meteorological Committee and its Commissions almost on a pre-war basis, except that the maximum membership of the Committee is increased from 17 to 20, and the Central Powers, are not, at present, represented.

In Great Britain, the Meteorological Office has been attached to the air ministry, and its forecast service has been transferred to the headquarters of that ministry. The office has materially enlarged its responsibilities by absorbing

the British Rainfall Organization, hitherto an independent and unofficial concern, comprising a corps of about 5000 rainfall observers in the British Isles.

Before the war the exchange of weather reports between the countries of Europe was seriously hampered by the slowness of telegraphic transmission. Some progress had, however, been made in the issue of meteorological bulletins from high-power radiotelegraphic stations, such as the Eiffel Tower; chiefly for the benefit of mariners. During the war the urgent necessity of keeping the air service, artillery, etc., supplied with the latest weather information led to the general use of radiotelegraphy for this purpose, and the same system has now been extensively adopted for ordinary peacetime uses. In France, for example, reports of the surface weather conditions at about 25 French stations, together with Brussels and Mainz, and also the results of upper-air soundings at certain stations, are issued four times a day by radio from the Eiffel Tower for the information of all countries within range. Within France itself more frequent reports from a greater number of points are exchanged by a network of smaller radio stations. Several other European countries have adopted more or less similar systems, or are about to do so. The new-style weather reports, transmitted by radio, are more elaborate than those exchanged by wire before the war, and include data of special value to aeronauts, such as the degree of "visibility" and the force and direction of the winds at different levels. The British Admiralty is organizing a world-wide system of collecting wireless weather reports from ships at sea three times daily, and of supplying comprehensive weather bulletins and forecasts to ships in all parts of the ocean. These reports will also be of great value to aeronauts. The British Meteorological Office has added an "upper-air supplement" to its daily weather report, and detailed information in regard to flying conditions is now published in the British newspapers.

In the United States upper-air soundings are now made daily at upwards of 20 stations, maintained by the Weather Bureau, the army, and the navy. The results are telegraphed to the headquarters of the Weather Bureau, in Washington, where daily aviation weather bulletins and forecasts have been issued regularly since December, 1918. This Bureau has also made special arrangements for furnishing appropriate weather data in connection with important flights, such as those recently accomplished across the Atlantic, and in connection with balloon races and other aeronautical events.

Several proposals have been put forth looking to the regular use of aeroplanes for making upper-air observations. Military aviators took such observations to some extent during the war. New acoustic methods of pilot-balloon sounding were developed by both the French and the German armies during the war, and the details have recently been made public. The sounds produced by a series of explosions of "crackers," carried by the balloon, are registered by suitable apparatus, and the course of the balloon can thus be followed when optical observations are impracticable on account of fog or clouds. The Smithsonian Institution has announced that Prof. R. H. Goddard, of Clark College, has invented a new form of rocket capable of carry-

ing self-registering meteorological instruments to the extreme limits of the earth's atmosphere. The U. S. Weather Bureau has introduced an ingenious method of plotting the winds above the earth, in which the problem of charting in three dimensions is satisfactorily solved. A base-map carries little metal posts, one above the position of each aerological station, and the direction and force of the winds at various levels over these places are shown by means of a series of adjustable arrows, attached to the posts. When the telegraphic reports from the balloon and kite stations have thus been charted, the completed map is photographed with a stereoscopic camera, the pair of pictures obtained being finally mounted for inspection with a stereoscope.

During the year 1919 the Weather Bureau took over the Hawaiian Volcano Observatory, at the crater of Kilauea, and, to this extent, added volcanology to the programme of its activities. Another new departure in Weather Bureau work is the Highway Weather Service, the duties of which are to assemble and distribute information concerning the state of important roads, for the benefit of motorists and others. In response to a widespread demand on the part of heating and ventilating engineers and various industries, the Bureau has considerably enlarged its observations of atmospheric humidity.

A new edition of the Smithsonian Meteorological Tables (dated 1918 but published in 1919) embraces a number of novel features, such as tables for converting millibars (the new unit of atmospheric pressure) to millimeters and inches, and a material revision of the vapor pressure tables, in accordance with a formula devised by Professor Marvin.

Dr. W. J. Humphreys, of the U. S. Weather Bureau, has added memoirs on the optics of the air and the factors of climatic control to the series of papers on the physics of the air which he has been contributing to the *Journal of the Franklin Institute* since August, 1917. This series, which embodies a critical revision of existing knowledge on the subject of meteorological physics, will probably be reprinted in book form. A summary of available information concerning the characteristics of the free atmosphere, by W. H. Dines, has been issued as a *Geophysical Memoir* of the British Meteorological Office. C. F. Marvin has made a mathematical analysis of the daily temperature values at several long-record stations in the United States, from which he concludes that such alleged recurrent irregularities as the "January thaw," the "ice saints" of May, etc., have no real existence. The Prussian Meteorological Institute has published a monumental work by C. Dorno, of Davos, Switzerland, dealing with the illumination of the sky, atmospheric polarization, and kindred phenomena, as studied at the author's unique Alpine observatory. Several tentative applications of cinematography to the study of series of daily weather maps have recently been reported. A. E. Douglass has published an elaborate study of the annual rings of trees in relation to climate and solar activity.

New meteorological instruments include an improved pole-star recorder (for registering nocturnal cloudiness) and an improved snow-sampler, both devised by B. C. Kadel; and a new continuous recorder of atmospheric pollution, in-

roduced by the British Advisory Committee on Atmospheric Pollution.

In commemoration of the 80th birthday of the distinguished Austrian meteorologist Dr. J. von Hann, Mar. 23, 1919, a large sum of money raised among his friends and admirers in many countries was placed under the charge of the Vienna Academy of Sciences for the purpose of providing a periodical *Hann Prize* for achievements in meteorology.

The necrology of the year includes the names of Dr. John Aitken, Walter G. Davis, Capt. M. W. Campbell Hepworth, William Allingham, W. L. Dallas, R. H. Curtis, and Father W. Sidgreaves.

Among the meteorological books published during 1919, in addition to those already mentioned, are Sir Napier Shaw, *Manual of Meteorology*, part 4; J. Rouch, *Manuel Pratique de Météorologie*; C. Dorno, *Physik der Sonnen- und Himmelsstrahlung*; E. H. Chapman, *The Study of the Weather*; and D. W. Mead, *Hydrology*.

See HURRICANES.

METHODIST EPISCOPAL CHURCH.

Statistics for 1919 for this denomination show that there were 3,793,618 full members and 381,884 probationers with 18,000 ministers with full connection and 1693 on trial, besides 14,291 local preachers. The 29,849 church buildings had an aggregate value of \$236,786,939, and the 15,342 parsonages were valued at \$41,600,739. Sunday schools numbered 35,475 with 4,324,458 pupils and 393,122 teachers and officers. Besides the United States, the denomination has churches affiliated with the Methodist Episcopal Church in the United States, in Denmark, Finland, Korea, North China, Norway, Sweden, and Switzerland, and missions among the Pacific Swedish, Pacific Chinese, Pacific Japanese, in Alaska, Arizona, Russia, and Utah.

This denomination with all its branches is the second largest in the United States. Statistics for many of the branches will be found under their separate headings. Reports for the Methodist Episcopal Church, the original denomination, show 3,574,386 full members and 125,184 probationers, in 1919. There were 17,044 full ministers, 1405 on trial, and 9912 local preachers, using 27,469 church buildings with an estimated value of \$230,326,863, and 13,626 parsonages with a value of \$21,349,826. The 27,170 Sunday schools in this country had an enrollment of 3,951,350 pupils with 374,220 officers and teachers.

The Epworth League, which is the largest church society, had an enrollment for the entire denomination of 504,923 senior members and 207,144 junior members. In the United States alone there were 282,501 senior members and 90,997 junior members. The above figures show a slight decrease from the corresponding figures for 1918.

During the war, the National War Council of the Methodist Episcopal Church did valuable work in raising money to help parishes near army camps that the men in service might have all the opportunities desired to continue their religious devotions, and to spend some of their free time with the local members of the church. With the help of the Board of Foreign Missions, aid was given to some of the orphans in France, left destitute by the war. In Italy much refugee work was accomplished and many

preachers in that country were aided. During 1919 the work was continued on a modified scale. In the United States much work was done in protecting girls and women in large cities, in improving conditions surrounding industrial plants, and other general protective work. Most of the 220 chaplains in the army during the war returned to civil life during the year.

Missionary work is carried on in Africa, China, Japan, Korea, Malaysia, Philippine Islands, India, South America, and Mexico. Missionaries, including regularly appointed men and women of the Board of Foreign Missions and of the Woman's Foreign Missionary Society totaled 1589. The complete enrollment in 1919 of members of the churches in missionary lands was 484,937, to which must be added 125,705 baptized children, and 60,076 unbaptized adherents, making a total of church members and adherents of 670,718. The total contributions of the church for foreign mission work were \$1,035,653, an increase of \$207,565 over 1918. The Board of Foreign Missions maintains 18 colleges and universities with an enrollment of 2662; 64 theological and Bible Training Schools with 1464 students; 105 high schools with 13,602 pupils in attendance; 2723 elementary schools with 81,393 pupils in attendance, or a total of students in all schools of 99,121, a gain over the previous year of 877. Much work is done among the negroes by the Freedmen's Aid Society. The society is endeavoring to educate the negro to be self-supporting, to compete for a living against the white man, and to help him improve the conditions under which he lives. Twenty-one institutions are maintained in which, in 1919, there were about 6000 students, taught by about 350 teachers. The courses cover every phase of literary and industrial education.

The Board of Education stands in a supervisory relation to 42 universities and colleges, seven professional and graduate schools, 34 secondary schools and 18 institutions for negroes. The total endowment of these institutions in 1919 was \$40,617,170, the total amount of annual income was about \$6,500,000. Among the universities the most important are: De Pauw University, Indiana; Northwestern University, Illinois; University of South California; Ohio Wesleyan University; Boston University, and Wesleyan University. The board maintains a Student Loan Fund to help students to complete their courses at the various institutions. During 1919 this fund was used by a large number of students. The church also maintains 89 deaconess homes, 24 deaconess hospitals, and 10 deaconess training schools. Besides these there are 51 regular hospitals, 39 children's welfare institutions, and 39 homes for the aged. The Methodist Book Concern publishes many periodicals which are sent to all parts of the country. Its headquarters are in New York with branch offices in Boston, Pittsburgh, Detroit, Cincinnati, Chicago, Kansas City, and San Francisco.

METHODIST EPISCOPAL CHURCH, SOUTH. Statistics for 1919 show in this denomination 2,178,414 members; 7390 traveling preachers, not including supplies; 4879 local preachers, including supplies; 1,737,383 Sunday school pupils, with 139,791 officers and teachers, and 112,764 members of the Epworth League.

Churches numbered 17,376 with a value of \$63,823,880, and there were 5627 parsonages with a value of \$12,833,138. The above figures are approximately the same as in 1918. Missions are maintained in Brazil, Central Mexico, China, Cuba, Korea, Mexican Border, and Pacific Mexico. For purposes of administration, the denomination is divided into 50 conferences and 330 districts. The College of Bishops, composed of 19 ministers from all parts of the South and Southwest, comprises the executive body of the church. The principal periodicals are the *Methodist Review*, and the *Christian Advocate*. Educational, missionary, and relief work is carried on by committees appointed by the College of Bishops.

METHODISTS, CANADIAN. In 1883 the Methodist Episcopal Church, the Wesleyan Methodist Church, the Primitive Methodist Church, the Methodist New Connection Church, and the Bible Christian Church united to form the Methodist Episcopal Church in Canada as the beliefs of the five were very similar, and much better work could be done by coöperation. Besides the Dominion of Canada and Newfoundland, there are churches in Bermuda that are affiliated with this denomination. Canada is divided into 12 conferences which are further subdivided into many districts, for the purpose of administration and organization. The conferences are as follows: Toronto, London, Hamilton, Bay of Quinte, Montreal, Nova Scotia, New Brunswick, Prince Edward Island, Newfoundland, Manitoba, Saskatchewan, Alberta, and British Columbia.

Statistics for 1919 show there was a total membership of 388,210 including probationers; 2759 regularly ordained ministers; 2138 lay preachers; and 3745 churches. Sunday schools numbered 3600, with 413,421 pupils, and 41,382 officers and teachers. In the Young Peoples' Societies there were 2300 active organizations. The above figures show a slight decrease from 1918. A board of education has supervision over 17 colleges and universities, the most important of which are: Victorian University, in Toronto; Mt. Allison University in Sackville, N. B.; Wesleyan Theological College in Montreal, and Wesley College in Winnipeg. The *Christian Guardian* is the principal periodical published by the denomination.

METHODISTS, COLORED. Statistics for 1919 for this denomination show that there were 267,361 members and probationers; 3402 ordained ministers; 2786 lay preachers; 3485 church buildings; 4007 Sunday schools with 79,876 pupils and 7098 officers and teachers. This denomination was originally a part of the Methodist Episcopal Church, South.

AFRICAN METHODIST EPISCOPAL. Figures for 1919 for this denomination, show that there were 551,766 members and probationers; 5100 ordained ministers; 6302 lay preachers; 6879 church buildings; 5695 Sunday schools with about 310,000 pupils and 39,301 officers and teachers. This denomination resulted from the dissatisfaction of some negroes with the Methodist Episcopal Church and the new church was formed in 1815.

AFRICAN METHODIST EPISCOPAL ZION CHURCH. In 1919 there were in this denomination 453,873 members and probationers; 3241 ordained ministers; 649 lay preachers; 3180 church buildings; 5694 Sunday schools with 119,150 pupils,

and 14,404 officers and teachers. The church maintains 12 schools and publishes four periodicals, the principal one being the *Star of Zion* (weekly).

AFRICAN UNION METHODIST PROTESTANT CHURCH. Statistics for 1919 show that in this denomination there were 15,000 members and probationers; 250 ordained ministers; 750 lay preachers; 200 church buildings; 66 Sunday schools; 5266 pupils, and 441 officers and teachers. This denomination was founded in Delaware in 1813, and in 1865 united with the First Colored Methodist Protestant Church. The only periodical is the *Union Star*.

REFORMED METHODIST UNION EPISCOPAL CHURCH. Statistics for 1919 show that there were in this denomination 2000 members and probationers; 35 ministers, and 28 churches. These figures show a loss of about 60 per cent over the previous year. Originally a part of the African Methodist Episcopal Church, the Independent Methodist Church was founded in 1884. Later the name was changed to the Reformed Methodist Union Episcopal Church.

UNION AMERICAN METHODIST EPISCOPAL CHURCH. Statistics for 1919 for this denomination show that there were 3625 members and probationers; 205 ministers; 67 churches; 78 Sunday schools with 3372 pupils and 481 officers and teachers. The Union Church of Africans was organized in 1813 because the negroes objected to white control of the churches. In 1850 there was a split in the church, and the Union American Methodist Episcopal Church was formed. A school is maintained in Camden, N. J. The principal periodical is the *Union Messenger* published in Media, Pa.

REFORMED ZION UNION APOSTOLIC CHURCH. Statistics for 1919 for this denomination show that it had 9000 members, 44 ministers, and 51 churches. The church was reorganized in 1882 from the Zion Union Apostolic Church which was split up in 1869. A school is maintained in La Crosse, Va.

METHODISTS, WESLEYAN. In Great Britain and Ireland, this is the principal Methodist denomination. Statistics for 1919 show a slight decrease in the size of the church. In Great Britain there were 485,533 members and probationers; 2594 ordained ministers; 18,618 lay preachers; 8528 churches; 7364 Sunday schools with 869,334 pupils and 125,663 officers and teachers. In Ireland there were 27,226 members and probationers; 258 ordained ministers; 622 lay preachers; 488 churches; 320 Sunday schools with 21,930 pupils and 2149 officers and teachers. Foreign missions had 204,719 members and probationers; 632 ordained ministers; 8107 lay preachers; 3707 churches; 2351 Sunday schools with 142,403 pupils and 9168 officers and teachers. The French Conference reported 1433 members, 31 ministers, and 62 churches. The South African Conference reported 143,897 members and probationers; 294 ordained ministers; 4627 lay preachers; 4280 churches; 904 Sunday schools with 42,582 pupils and 3106 officers and teachers. These latter figures show marked progress during the year.

PRIMITIVE METHODIST CHURCH. There were in 1919 in this denomination 206,035 members and probationers; 1093 ordained ministers; 14,602 lay preachers; 4798 churches; 4019 Sunday

schools with 416,937 pupils, and 56,124 officers and teachers.

UNITED METHODIST CHURCH. There were in 1919 in this denomination 182,344 members and probationers; 734 ordained ministers; 5919 lay preachers; 3090 churches; 2239 Sunday schools with 271,245 pupils and 37,611 officers and teachers.

WESLEYAN REFORM UNION CHURCH. There were in 1919 in this denomination 8671 members and probationers; 26 ordained ministers; 423 lay preachers; 213 churches; 190 Sunday schools with 13,950 pupils and 2475 officers and teachers. The above figures show a marked loss over the corresponding figures for 1918.

INDEPENDENT METHODIST CHURCH. There were in 1919 in this denomination 9621 members and probationers; 378 ministers; 146 churches; 159 Sunday schools with 25,432 pupils and 2945 officers and teachers.

AUSTRALASIAN METHODIST CHURCH. There were in 1919 in this denomination 179,215 members and probationers; 1102 ordained ministers; 9074 lay preachers; 4450 churches; 4000 Sunday schools with 210,000 pupils and 25,578 officers and teachers.

NEW ZEALAND METHODIST CHURCH. There were in 1919 in this denomination 25,180 members and probationers; 181 ordained ministers; 925 lay preachers; 468 churches; 422 Sunday schools with 29,035 pupils and 3162 officers and teachers.

JAPAN METHODIST CHURCH. According to the latest available statistics (1918) there were in this denomination 15,364 members and probationers; 241 ministers; 245 churches; 340 Sunday schools with 28,438 pupils and teachers.

Methodism is also represented in the following countries, the figures being the latest available membership: Austria-Hungary, 955; Bulgaria, 691; Denmark, 4092; Finland, 1611; France, 507; Italy, 4132; North Germany, 14,760; Norway, 6132; Russia Mission, 452; South Germany, 14,005; Sweden, 16,454; Switzerland, 10,597. See also **WESLEYAN METHODIST CONNECTION IN AMERICA.**

METROPOLITAN OPERA HOUSE. See **MUSIC, OPERA.**

MEXICO. A federal republic lying to the south of the United States and to the north of Central America. Capital, Mexico, which is in the Federal district.

AREA AND POPULATION. The country is divided for administrative purposes into 28 states, one Federal district, and two territories. Area, estimated at 767,198 square miles or 25.25 per cent of the area of the United States. This area includes islands with an area of 4042 kilometers which are not included in any of the states or territories. The population according to the census of 1910, 15,115,612; estimated, 1912, 15,501,684. Chief cities with their populations of 1910 are: Mexico, 571,066; Guadalajara, 119,468; Puebla, 96,121; San Luis Potosi, 68,022; Monterey, 73,528; Merida, 62,447; Leone, 57,722. Complete figures for emigration and immigration could not be obtained but from September, 1918, to June, 1919, the emigrants numbered 47,978, and the immigrants 60,068. The prevailing religion is Roman Catholicism, but there is complete religious toleration under the constitution and the church is separate from the state. Education is free and compulsory and with the exception of the Federal district and territories,

it is under state control. There is a national university at the capital organized in 1910.

PRODUCTION. There is an abundance of fertile soil and the products of temperate, tropical, and semi-tropical zones are found within a comparatively small radius on account of the varying altitude. The chief products are corn, cotton, wheat, henequin, coffee, and beans, and there is a considerable production of sugar and molasses and spirits. The oil resources are very extensive and of late years have been exploited by foreign capital. The changed policy of the government in regard to oil and other concessions has given rise to much friction in relation of the United States and other powers (see below).

In 1918 the total production of cotton amounted to 79,293 tons, of which 20,603 were raised in Lower California, 35,101 in the state of Coahuila, 12,566 in Tepic, 8250 in Durango, 410 in Jalisco, 912 in Oaxaca, 618 in Sinaloa, 605 in Sonora, and 588 in Veracruz. The corn production of 1918 totaled 1,128,570,535 kilograms, according to reports made by the governors and chambers of commerce of the various states to the department of agriculture. Indications for 1919 promised an equally large crop with the probability that there would not only be a sufficient amount for home consumption but a margin for exportation. One of the most valuable products of Mexico is henequin or sisal fibre. This comes from the state of Yucatan and is its only product and export of any consequence. A large part of the material for binder twine throughout the world is supplied by Yucatan. The annual exports, most of which go to the United States, through the ports of New York and New Orleans amount on the average to 140,000 tons, valued at \$50,000,000.

No complete figures could be obtained for the mineral production, but during the first nine months of 1918 the metals produced in Mexico were valued at 185,064,982 pesos distributed as follows: Silver, 65,654,571; copper, 66,096,344; lead, 23,800,689; zinc, 9,036,233; gold, 3,244,781; antimony, 2,471,147; and the rest in tin, mercury, tungsten, graphite, manganese, and molybdenum.

The following information in regard to the production of petroleum is supplied by the *Pan-American Union*:

In 1918 the production of petroleum amounted to 10,147,588 cubic meters, or 63,820,836 barrels, and the indications for 1919 were that it would reach 15,875,000 cubic meters, or 80,000,000 barrels—an increase of 20 per cent over the production of the previous year.

The government was making a special effort to increase the number of petroleum refineries. In 1919 there were only four refineries but measures were taken for the installation of new ones at an early date. There was also an increase in the number of tanks for the storage of petroleum. According to press reports in 1919 rich deposits of petroleum were found in the state of Coahuila. It was said that geological investigations had shown that in the north of Coahuila there were petroleum resources which compared favorably with those in the state of Vera Cruz. Down to that time the latter were regarded as among the best and richest in the world. The deposits in Coahuila were pronounced by geologists to be a continuation of the petroleum vein which had been discovered in the State of Texas. In 1918 the coal mined in the republic amounted to, in

round numbers, 600,000 tons. In 1919 the national government decided to operate all silver mines of the country in order to check the high prices and bring the country back to its position of the greatest silver-producing nation in the world.

An industrial census was in progress during 1918 and 1919 and was approaching completion in the latter year. Down to September of that year the number of industrial establishments registered was 3805 distributed as follows: Food industries, 693; metal, 614; textile, 213; electrical 40; sundry, 2245. The establishments represented a capitalization of about 240,000,000 pesos employing 35,000 workers.

At the close of the year, a bill was proposed for an appropriation not to exceed \$25,000,000 for the purchase or appropriation under indemnity all properties held by foreigners within a zone of 62 miles from the frontiers and of 31 miles from the seacoast. This measure was intended to regulate the execution of the section of the Federal constitution of 1917 which provided that within a zone of 100 kilometers from the frontiers and of 50 kilometers from the seacoast no foreigners shall under any conditions acquire ownership of lands or waters. It was not known whether the law would be passed or not, but it indicated clearly the continued adherence of the government to its principle of Mexican control over Mexican resources.

FOREIGN TRADE. In 1918 the foreign trade totaled 531,775,487 pesos of which 367,305,451 were exports and 164,470,036 imports. Reduced to United States currency the figures would be, total, \$265,887,744; exports, \$183,652,725; and the imports, \$82,235,019. The imports and exports by principal countries of origin and destination for 1913 and 1918 were as follows:

<i>Imports</i>			
	1913	1918	
United States	\$48,643,778	\$70,576,314	
United Kingdom	12,950,046	4,787,725	
France	9,168,977	1,635,928	
Cuba	92,383	1,377,351	
Spain	5,265,320	994,577	
India	1,430,519	652,533	
Guatemala	11,825	510,052	
Italy	942,080	332,323	
Switzerland	946,083	233,923	
Japan	488,684	166,835	
China	194,969	164,744	
Nicaragua .....	.....	129,603	
Honduras	9,100	94,112	
Argentina	611,244	93,665	
Peru	8,705	86,935	
Salvador	6,598	69,063	
Java	9,712	58,243	
Ecuador	60,403	47,917	
Dominican Republic	28,951	42,969	
Venezuela	80,253	29,249	
Colombia	14,835	26,157	
Costa Rica	2,143	25,863	
Netherlands	334,746	13,455	
Sweden	375,712	6,599	
Chile	168,827	2,175	
Canada	151,722	2,609	
Norway	254,525	651	
Germany	12,610,384	292	
Belgium	1,401,718	100	
Other countries	671,397	73,557	
Total	\$97,886,169	\$82,235,019	

<i>Imports by Classification</i>			
	1913	1918	
Animal products	\$9,025,709	\$9,990,936	
Vegetable products	15,784,772	18,992,998	
Mineral products	23,723,453	14,404,460	
Textiles	12,943,176	14,326,997	
Chemical products	6,808,518	5,819,312	

	1913	1918
Alcoholic beverages	3,425,892	618,616
Paper, all kinds	2,643,876	1,535,236
Machinery and accessories	12,249,341	5,625,905
Vehicles	2,553,314	3,299,730
Arms and explosives	3,868,784	1,111,098
Miscellaneous	5,359,339	7,009,731
Total	\$97,886,169	\$82,235,019

The exports by principal countries of destination in 1913 and 1918 were:

<i>Exports</i>			
	1913	1918	
United States	\$116,017,854	\$175,037,172	
Chile	31,491	2,842,058	
United Kingdom	15,573,551	2,186,313	
Cuba	868,938	1,514,585	
Spain	1,091,413	827,703	
Argentina	7,965	448,806	
British Honduras	588,685	418,580	
Panama .....	.....	364,413	
Guatemala	413,154	291,783	
Brazil	12,000	242,390	
Japan	137	125,696	
Honduras	3,961	51,944	
Peru	75	45,850	
Nicaragua .....	.....	30,251	
Costa Rica	518	16,363	
Salvador	204,931	5,810	
France	3,575,509	3,006	
Germany	8,219,009	.....	
Belgium	2,575,624	.....	
Canada	743,768	.....	
Other countries	228,432	.....	
Total	\$150,202,808	\$183,652,725	

<i>Exports by Classification</i>			
	1913	1918	
Animal products	\$9,918,916	\$9,784,850	
Vegetable products	42,971,477	64,468,662	
Mineral products	94,824,305	106,966,171	
Manufactured products	1,672,633	.....	
Miscellaneous	815,477	2,433,042	
Total	\$150,202,808	\$183,652,725	

a Includes petroleum, \$70,250,000.

The following information in regard to the oil production and export is supplied by the *Pan-American Union*.

Figures published by the oil companies of Mexico show the increase which oil production has made in the country and the increased export in the last 10 years. The exportation of oil in 1910 amounted to 3,332,807 barrels, and in 1911 increased to 14,051,643 barrels; in 1912 it was 16,558,215 barrels; 1913, 25,696,291 barrels; 1914, 26,235,403 barrels; 1915, 32,910,508 barrels; 1916, 40,440,468 barrels; 1917, 55,292,770 barrels; 1918, 63,828,836 barrels; and is estimated at 79,758,403 barrels for 1919. As the total of the first eight months of the present year was 53,159,203 barrels, there was a monthly average production of 6,644,900 barrels. These figures showed that the exportation of oil for the year would amount approximately to 80,000,000 barrels, a figure never before reached in Mexico. Since 1910 about 358,105,444 barrels of Mexican oil were exported.

There was evidence in 1919 that the trade between Mexico and the United States had developed to a marked degree and had established a better record than the year before, but full statistics were lacking.

COMMUNICATIONS. The merchant marine in 1919 had a tonnage of 40,257 and the vessels engaged in river navigation had a tonnage of 366,726. Press reports stated that the railway between the city of Durango and the port of

Mazatlán would be completed by the end of the year, as construction had already progressed beyond the city of Llano Grande and is being pushed rapidly. The line will undoubtedly be a prominent factor in the development of commerce, mining, and agriculture in the country, not only because of the wealthy character of the region it traverses but more especially because it will connect the interior directly with the port. The storms in the autumn of 1919 did severe damage to Mexican national railways, and more than 50 bridges were destroyed in the division from Jimenez to Chihuahua. The large Otiz bridge in the state of Chihuahua was so damaged as to require complete rebuilding, and it was planned to construct a new bridge entirely of concrete in order to restore the repeated overflows of the Concha River. The national system of telegraphs was extended in 1918 by 83,229 kilometers. The telegraph offices numbered 528.

FINANCE. The national revenue for 1919 was estimated at 149,384,000 pesos and for 1920 at 162,000,000. In 1919 the foreign debt exclusive of interest, amounted to 286,944,251 pesos (peso equals 50c U. S. gold) and the internal debt to 138,795,550 pesos. The total interest on both found on June 30, 1919, was 103,832,284 pesos, making a grand total for the debt of the country of 529,572,085 pesos. There was a crisis in the monetary situation at the close of the year resulting from the lack of small currency and a number of factories throughout the country were obliged to close for want of currency with which to pay their employees. The circulation of a considerable issue of paper money was authorized by decree. It provided for 25,000,000 pesos in paper money of which 15,000,000 were to be issued in bills of 50 centavos and the remainder in bills of one peso. At the close of the year a decree was issued empowering the central government to indemnify owners of lands which had been or might be taken for distribution among the inhabitants of towns and villages under the law of Jan. 6, 1915, and under the provisions of the constitution, and for this purpose a federal debt was created known as the Agrarian Public Debt represented by the issue of bonds to the limit of about \$25,000,000 in United States currency. The income received from payment for lands allotted to the people and to communities was to be applied to the payment of interest and principal of this debt. Government officials disapproved at the close of the year the circulation of American currency in the north of Mexico and along the coast on the ground that it drove out the Mexican fractional currency. American bills and silver money were circulating freely in many parts of the country, especially around Tampico and frequently the government was obliged to accept them in payment of taxes, etc.

HISTORY

There was complaint during 1919 in the United States of the policy of the Carranza government toward foreign investors. For the account of these difficulties and especially the trouble in the oil fields see preceding YEAR BOOK. A National Committee of 20 bankers, 10 Americans, five French, and five British was formed early in 1919 for the safeguarding of the holders of Mexican securities and at the same time an organization was formed, called the National Association, for the protection of American rights

in Mexico. Through the activity of persons interested instances of Mexican injuries to American citizens were collected and published. Between August, 1917, and March, 1919, a statement addressed to the State department declared that in the Tampico oil fields 12 men, of whom eight were American citizens, were killed; 31 persons, including nine women were wounded, and more than \$200,000 worth of American property was stolen or destroyed. The outrages were attributed to bandits who were said to have made 115 raids, attacks, or hold-ups upon the property or personnel of the 14 oil companies. Frequent reports of the killing or capture of American citizens near the border were published. Villa bands were reported to be active in the north, and in March the American representatives in Mexico were instructed by the State department to request the Mexican government to take measures for the protection of American citizens in that region. In the state of Morelos it was reported on March 15th that the commander of the government forces had regained control in that State, having subdued the followers of Zapata, who had been for several years active there, and that the government would introduce radical measures of reform including the division of the larger estates among the people, and the establishment of schools. Nevertheless throughout the country generally conditions were reported to be highly disorganized, and the government seemed to be entirely unable to enforce law and order. In reprisal for Mexican outrages a body of United States troops on March 23d entered Mexico in pursuit of bandits and killed or wounded several Mexicans in a skirmish. This raid was attributed to the stealing of cattle and horses from an American ranch in Texas near the border. Early in the year there were reports that the Mexican government had granted concessions to Japanese companies for the exploitation of lands in Lower California; on March 31st an investigation was ordered by the State department, and on April 1st the Japanese minister to Mexico declared there was no truth in this report. On June 15th another American raid took place when a body of 3600 American troops advanced into Mexico to protect El Paso and in the course of a battle between the Carranza and Villa forces, the Americans were said to have cooperated with the Carranza forces in pursuit of the Villistas. On returning to Texas on the following day they reported that they had killed 45 Mexican bandits, having lost two of their own men. Meanwhile reports of other conflicts between the government and rebel troops in various parts of the country had been published. On April 17th, for example, General Blanquet, former minister of war under the Huerta government, the organizer of the forces led by General Felix Diaz for the overthrow of the government, was killed in an engagement near Vera Cruz. Efforts on the part of the United States government to secure from Mexico adequate protection of American citizens brought forth on June 19th the assurance of the Carranza government that steps had been taken to protect Americans in Chihuahua. Not long afterwards, however (on July 5th), sailors from the United States gunboat *Cheyenne* numbering 13, and all unarmed, were reported to have been attacked and robbed by Mexican bandits, near Tampico, and at the same time a station of an American

oil company was reported to be plundered. The American ambassador to Mexico, Mr. Henry P. Fletcher, gave Congress in July a list of 217 Americans who were officially known to have been killed in Mexico after 1911, of whom more than half had been killed since the accession of Carranza. It was declared that arrests had been made in only a few of these cases, and that reparation had been made in only one. The ambassador declared that he could not recall a single instance of prosecution or conviction of a Mexican for the murder of an American citizen. In many quarters comparatively slight attention was paid to these reported conditions as they were supposed to be in part the result of propaganda in the interest of persons desiring intervention in Mexico. The Mexican government sought to conciliate the United States through its ambassador at Washington, who in July issued an appeal to the American people saying that Mexico had a stable government and would discharge all its obligations, and deploring the efforts to bring about an armed intervention. About this time (July 25th) the President had again recourse to the embargo of arms and ammunition, issuing a proclamation prohibiting their shipment into Mexico on the ground that it accentuated the disorders. All through the year these reports of Mexican atrocities and of the discrimination of the government against Americans, or at least its indifference to their safety and interest, continued steadily to appear in the press.

According to information supplied to the Senate Committee on Foreign Relations investigating the Mexican situation, there were 317 serious outbreaks of disorder reported in the Mexican press from April 10th to July 31, 1919, and these disorders were all attributed to rebel factions, bandits, military and police organizations, and political partisans. Almost every state and territory of Mexico was represented. The majority of the outbreaks, that is to say, 272 were attributed by the Mexican press to rebellion against the Carranza government. Some of the newspaper editors, whose policy in publishing these reports was displeasing to the government, were arrested and deported by the government to the State of Chihuahua. The special object of attack was the transport system of the country. During the period mentioned 72 instances of dynamiting, looting trains, attacks on railway stations, and tearing up of railway tracks, were reported in 18 States. During the same interval attacks were made upon 31 of the more populous towns on the railway lines. Serious interruptions of traffic occurred in the States of Vera Cruz and Puebla, where important lines connecting the Mexican capital with the coast were seized. It was reported that in the State of Puebla alone 34 outbreaks of violence had occurred and that more than half of them had occurred in the neighborhood of Puebla City. It was in Puebla that the attack on William Jenkins, a United States consular agent, was reported. He was subsequently captured in October and held for ransom. (See UNITED STATES.) About 50 outbreaks were reported in the State of Vera Cruz, and all attributed to rebels. During the period Villa and his forces were reported to be constantly active in the States of Chihuahua and Durango, and on April 20th the railway traffic across the southern part of Chihuahua was reported to be indefinitely held

up. Villa at this time was said to have stolen a large quantity of silver bullion. Several battles were fought between his followers and the Carranza troops. In June the Villistas were reported to be holding the important town Parral and on July 9th to have captured San Andres. This led to the formation of concentration camps at Jimenez by the Carranza commander. In some instances disloyal Carranza officers were said to be responsible for outbreaks as for example, in raids at Aguascalientes reported on July 1st, and in the mountains of Guerrero, reported on May 12th. In the State of Mexico there were 15 outbreaks reported and in some instances they occurred at a short distance from the capital.

On November 26th General Angeles, the rebel leader, was executed by the government authorities at Chihuahua City. With four companions he had been captured in a cave at San Tomé, several of the others who had been with them having escaped. Two of his companions were killed by the Carranza troops. The two others were tried with him by court-martial, but were sentenced to imprisonment. Angeles was sentenced to death after a sensational trial in the course of which many pleas for clemency were presented. On the morning of November 26th he was shot by a firing squad in the barracks. During both the trial and execution he did not betray the slightest sign of fear, and showed entire indifference to his fate. It was generally recognized that the government was within its right in this course, but its wisdom was questioned as General Angeles was highly estimated for his character, both in certain quarters in Mexico, and abroad. See ANGELES, FELIPE. According to a dispatch from El Paso, Texas, on December 1st, which, however, did not mention the sources of its information, it was announced that on November 28th, 24 hours after the execution, 1000 soldiers under the command of Villa attacked the 80th regiment of the Federal army near Santa Rosalia, Chihuahua, and out of the 676 men killed all but two. See CHILD LABOR; UNITED STATES.

MEYER, KUNO. German professor of Celtic language and literature at the University of Berlin, died in the second week of October, his death being announced on October 14th. He was born in Hamburg and was well known in the United States and England as one of the leading authorities on Celtic philology. He was to have been exchange professor in 1915 at Harvard University, but the invitation was withdrawn on account of his efforts to arouse the Irish against Great Britain.

MIAMI CONSERVANCY. See FLOOD PREVENTION.

MIAMI FLOOD CONTROL. See DAMS.

MICHELHAM, Lord (HERBERT STERN). British financier, died in London, January 7. He was rated among the wealthiest men of his time. He belonged to the family who had long conducted a banking business in Paris, London, and Belgium under the name of Stern Brothers, and he inherited from his father, Baron Herman de Stern, a considerable fortune which he greatly augmented. He separated from the rest of his family in business and started independently the firm of Herbert Stern and Company, which, however, did not concern itself with general business. He was celebrated for his liberal contributions to charities, and his name was well

known on the turf. During the war he contributed to and took part in important relief measures. He was a collector of paintings and other works of art.

MICHELIN PRIZE. See AERONAUTICS.

MICHIGAN. POPULATION. The population of the State in 1910 was 2,810,173 and on July 1, 1919 it was estimated to be 3,173,089, a gain during the last 12 months of almost 40,000.

AGRICULTURE. The following table is compiled from a report of the federal Department of Agriculture, for December, 1919.

Crop	Year	Acres	Prod. Bu.	Value
Corn	1919	1,650,000	64,850,000	\$88,803,000
	1918	1,610,000	48,300,000	62,790,000
Oats	1919	1,475,000	36,875,000	26,181,000
	1918	1,658,000	66,320,000	45,781,000
Rye	1919	900,000	13,500,000	17,280,000
	1918	515,000	7,364,000	11,046,000
Hay	1919	2,650,000	3,180,000	74,412,000
	1918	2,598,000	2,676,000	62,886,000
Potatoes	1919	326,000	28,688,000	38,729,000
	1918	340,000	28,560,000	25,418,000
Barley	1919	280,000	5,320,000	6,278,000
	1918	300,000	9,000,000	9,000,000
Wheat	1919	1,035,000	20,237,000	42,497,000
	1918	762,000	10,856,000	22,689,000

^a Tons.

FINANCE. According to the report of the State Treasurer, for the year ending June 30, 1919, the total receipts were \$26,152,138 and the disbursements were \$26,551,763. The balance at the beginning of the year was \$13,559,367 and at the end of the year it was \$13,159,742.

EDUCATION. The latest available statistics are for the year ending July 9, 1917. For this period, the census enumerated 892,868 children of school age, an increase of 26,318 over the previous year. The enrollment was 662,453, an increase of 14,499 over 1916. Thus the percentage of attendance for 1917 was 86, a decline of 2 per cent from 1916. There were employed 3084 men and 18,908 women teachers; the average salary of the former was \$103 per month, and of the latter, \$64 per month, making the average monthly salary of teachers in all schools, \$70.09, an increase over 1916 of \$3.19 per month. The receipts and balance on hand for the year amounted to \$36,286,571, while the expenditures amounted to \$27,549,985. The total school indebtedness was \$449,277, an increase over 1916 of \$31,482.

TRANSPORTATION. The railway mileage for the State in 1919 was about 8907. There has been practically no construction for the last few years.

CHARITIES AND CORRECTIONS. The institutions of the State are governed by separate boards appointed by the Governor and Senate. They comprise the following: Hospital, at Kalamazoo; Hospital, at Pontiac; Hospital, at Traverse City; Hospital, at Newberry; Hospital, at Ionia; Psychopathic Hospital, at Ann Arbor; Home and Training School, at Lapeer; Farm Colony for Epileptics, at Wahjamega; Prison, at Jackson; Branch Prison, at Marquette; Reformatory, at Ionia; Industrial School for Boys, at Lansing; Industrial Home for Girls, at Adrian; School for the Blind, at Lansing; Employment Institution for the Blind, at Saginaw; School for the Deaf, at Flint; Soldiers' Home, at Grand Rapids; and the Sanatorium, at Howell. See MINIMUM WAGE.

LEGISLATION. The Michigan legislature convened in biennial session January 1st and adjourned May 15th. The legislature ratified the Federal Prohibition Amendment January 28th. During the session there were passed 421 bills. The principal acts were as follows: Permitting religious societies to receive gifts; amending the compulsory school law; authorizing the formation of women's clubs; absent voter's registration; regulating the disposition of moneys belonging to non-residents or unknown heirs; requiring all farm tractors to be equipped with fenders; providing for the construction of trunk line highways; creating the Michigan State Police; establishing a county road system; regulating the practice of embalming; creating a Department of Labor and extending the term of the Commissioner of Labor; repeal of act granting women the right to vote for presidential electors, and in certain other cases; providing for a uniform system of accounting in all the administrative departments of the State; prohibiting molestation of game and insectivorous birds by the operations of aircraft; limiting the tax levy of towns; providing county cream testers; establishing a budget system; prohibiting the display of the red flag in certain cases; authorizing certain cities to take title in fee to any public utility; providing for the appointment of State Health Commissioner; creating State Board of Control for Vocational Education; releasing legally married minors from parental control; prohibiting division of fees by physicians and surgeons; creating the Department of Animal Husbandry; prohibiting the grant of teachers licenses to other than citizens of the United States; prohibiting sex discrimination in the payment of wages; defining the crime of criminal syndicalism; penalizing the giving of checks, etc., when person so giving has insufficient funds or credit; creating Michigan Industrial Relations Commission; creating office of State Purchasing Agent; uniform fraudulent conveyance act; creating Michigan State Athletic Board of Control; creating Board of Examiners of Architects, Engineers, and Surveyors; prohibiting the employment of persons affected with infectious or venereal diseases in cigar factories; providing a primary election system for township officers; fixing rate of passenger fares; regulating the business of canning and preserving; creating a Public Utilities Commission.

Other acts passed at the special session were: Modification of the penalty of the prohibitive liquor act; new regulations for the opening and closing of the polls; an act creating a commission to investigate, etc., the disputed boundary between Michigan and Wisconsin; an act to promote the establishing of deep-water connections between the Great Lakes and the Atlantic Ocean, and an act providing for consolidation of school districts within certain cities.

Governor Sleeper convened the legislature in special session June 3d to vote an immediate issue of \$5,000,000 of the \$50,000,000 State Highway Improvement bonds authorized by the constitutional amendment ratified at the April election. At the special session, and on June 10th, both houses, without a dissenting vote, ratified the Federal Woman's Suffrage Amendment. A Woman's Suffrage Amendment to the State Constitution had been ratified at the general election, in November, 1919, by a majority of 34,052.

POLITICS AND GOVERNMENT. At the State election, April 6, 1919, the eight candidates on the Republican State ticket were elected by an average plurality of 285,750 in a total vote of 781,156. This average plurality exceeded by 80,867 the highest that any candidate before received in Michigan, the next highest being 204,887 for Theodore Roosevelt for President in 1904, and it exceeded by 166,984 the average pluralities of the six candidates on the Republican State ticket in November, 1918.

The election in April this year was the first in Michigan at which women exercised full suffrage rights, these rights having been given them by an amendment to the State Constitution ratified at the November election in 1918. These unprecedented pluralities followed a campaign in which not a single national or state issue was raised. Neither the Republican nor the Democrat State Committees conducted anything like a systematic campaign, and the expenditures of each of these two party organizations was less than \$5,000.

At both the Republican and Democrat conventions that nominated the state tickets, many women were delegates for the first time, and for the first time women were nominated for places on the tickets. The Republicans nominated for one of the two new members of the Board of Agriculture—the administrative board of the Michigan Agricultural College—Mrs. Dora H. Stockman, who is an officer of the State Grange. The Democrats nominated two women for Regents of the University of Michigan, a woman for Superintendent of Public Instruction, and a woman for member of the State Board of Education. The eight Republican candidates elected and their pluralities were:

Justices of the Supreme Court—Russell C. Ostrander, 290,924; John E. Bird, 283,024. Both reelected.

Regents of the University of Michigan—Benjamin S. Hanchett, 289,067; Lucius L. Hubbard, 282,336. Both reelected.

Members of the Board of Agriculture—Mrs. Dora H. Stockman, 288,147; L. Whitney Watkins, 292,653.

Superintendent of Public Instruction—Thomas E. Johnson, 267,696.

Member of the State Board of Education—Frank Cody, 294,150. Reelected.

Justice Ostrander, reelected to the Supreme Court bench for the full term of eight years beginning Jan. 1, 1920, died September 12th. Governor Sleeper appointed to succeed him Nelson Sharpe, Judge of the 34th Circuit, who will serve until the vacancy is filled by election in November, 1920.

At the April election a proposition for the State to issue bonds to the amount of \$50,000,000 for improving the highways of the State was ratified by a vote of 558,572 to 225,333, the majority for the proposition being 333,333. There was also submitted to the State Constitution a proposed amendment to legalize the manufacture, initiated by petition, to legalize the manufacture, sale and sale of legal-cider, wines, beer, pure, transportation and sale of initiated by anti-prohibitionists to remove the ban, outlawed along with the spirituous beverages, when an amendment to the State Constitution was ratified in November, 1916, by a majority of 68,024, prohibiting the manufacture and traf-

ficking in all kinds of intoxicating beverages. This wine and beer amendment, so-called, was rejected by a majority of 105,239.

On December 19th, Justice Franz C. Kuhn, of the Michigan Supreme Court, resigned because of the low salary—\$7000 a year. Governor Sleeper, December 24th, appointed George M. Clark of Huron County, temporarily to the vacancy, which will be permanently filled at the general election in November, 1920.

A grand jury in the Federal Court for the Western District of Michigan, sitting at Grand Rapids, the resident judge, Clarence W. Sessions presiding, began on October 21st an investigation of reports that Federal election laws had been violated in the campaign of 1918 to nominate and elect Truman H. Newberry, Republican United States Senator. Shortly after the primaries in August, 1918, a statement, required by law, was filed with the Secretary of the United States Senate that there had been expended in the Newberry primary campaign \$176,568.08. This statement was signed and sworn to by officials of the Newberry campaign committee. Mr. Newberry during both the primary and general election campaigns held a Lieutenant-Commander's commission in the navy and was on duty in New York. He was not in Michigan during either of the campaigns. He too filed a sworn statement that he contributed no money for the campaign, and was without knowledge of who contributed money or how much. The sworn statement of the committee officials mentions near relatives of Senator Newberry as having contributed nearly \$150,000 of the \$176,568.08.

Following filing of the statement of expenditures in the primary campaign a grand jury investigation was started in a Federal Court in New York City of allegations that Federal election laws had been violated. Officials of the Newberry campaign committee, subpoenaed to New York refused, on advice of counsel, to answer questions in the grand jury room on the ground that a Federal Court in New York was without jurisdiction in the case, and that if there was an investigation it should be by a court in Michigan. The government counsel appealed to the United States Supreme Court and the Supreme Court held that a Federal District Court has jurisdiction everywhere in the United States. Before the decision was handed down, however, the grand jury had been discharged.

The case then rested until the Federal Department of Justice initiated grand jury proceedings in Michigan in October, this year. The department designated as chief counsel in the proceedings Frank C. Dailey, of Indianapolis, who had successfully prosecuted Federal election law violators in five Indiana and Ohio cities, assisted by H. Dale Souther, of the United States District Attorney's Staff for the Western District of Michigan.

The grand jury was in session five weeks and examined more than 400 witnesses. On November 29th the jury returned indictments against 135 men on charge of violating Federal laws in the Newberry campaign. The indicted persons include Senator Newberry, his brother, John S. Newberry, Allan A. Templeton, President of the Detroit Board of Commerce and Detroit manufacturer; Frank W. Blair, President of the Union Trust Co., Detroit; Paul H. King, Fed-

eral Referee in Bankruptcy at Detroit and a former Receiver of the Pere Marquette Railroad; Richard H. Fletcher, Michigan Commissioner of Labor; Samuel Odell, member of the Michigan Public Utilities Commission and former State Treasurer; Dr. James B. Bradley, a former Auditor-General of Michigan; Frank L. Covert, a judge of the Sixth Michigan Judicial Circuit; Milton Oakman, a former sheriff of Detroit; Guy L. Ingalls, City Treasurer of Detroit; Judd Yelland, Probate Judge of Delta County; John W. Dunn, Probate Judge of Arenac County; George S. Ladd, of Massachusetts, a former master of the Massachusetts State Grange, and Frederick Cody, of New York City. Others indicted include nine present and past county prosecutors, four bankers, three State Senators, three Labor Union officials, the publisher of the official organ of the Michigan State Grange, and one clergyman.

Senator Newberry was held on \$10,000 bail and the others in like amount and down to \$1000. All furnished bail. Judge Sessions designated Jan. 27, 1920, as the date for the trials to begin. A motion by counsel for the defendants that they be furnished with a list of all the government's witnesses was denied by Judge Sessions December 15th. On December 17th W. H. Eichorn of Bluffton, Ind., a former county judge of that State, was appointed by the Department of Justice an additional government counsel for the trials.

On May 12th was begun the trial at Mt. Clemens, Mich., on a change of venue from Detroit, of Henry Ford's libel suit for \$1,000,000 against the *Chicago Tribune*. The suit was on account of an editorial in the *Tribune*, June 23, 1916, with the headline: "Ford is an anarchist." The *Tribune* had sought to encourage enlistments in the National Guard for services on the Mexican border by obtaining assurances from employers that they would hold jobs open for men in the service, and would either continue their wages while away or care for their dependants. The *Tribune* wired its Detroit correspondent for a statement from the Ford Motor Company as to what the company would do in the situation. According to testimony the correspondent interviewed by telephone Frank L. Klingersmith, vice-president and secretary of the Ford Company, and received a reply that the company would do nothing either for its employees or their dependants, and that on their return the men would be considered as new applicants for employment. The accuracy of the interview was disputed at the trial. The editorial was based on the correspondent's dispatch.

Judge James G. Tucker of the Macomb County Circuit presided at the trial, which was one of the longest on record for a libel suit. Several hundred witnesses testified, and the transcript of testimony approximated 2,000,000 words. Seventeen attorneys were engaged on both sides in the court room. Henry Ford himself was on the stand seven days. On August 14th the jury, comprising 11 farmers and one road builder, after deliberating 10 hours, returned a verdict for Mr. Ford, fixing damages at six cents. Counsel for both sides assured the court that they were satisfied with the verdict.

OFFICERS. Governor, Albert E. Sleeper; Lieutenant-Governor, Luren D. Dickinson; Secretary of State, Coleman C. Vaughan; Treasurer, Frank

E. Gorman; Auditor-General, Oramel B. Fuller; Attorney-General, Alex. J. Groesbeck; Superintendent of Public Instruction, Thomas E. Johnson; Commissioner of Insurance, F. H. Ellsworth; Commissioner of Labor, R. H. Fletcher; Commissioner of Banking, F. W. Merrick; Librarian, Mary C. Spencer.

JUDICIARY. Supreme Court: Chief Justice, John E. Bird; Associate Justices, Nelson Sharpe, Joseph B. Moore, Joseph H. Steere, Falvius L. Brooke, Grant Fellows, Franz C. Kuhn, John W. Stone, Clerk, Jay Mertz.

MIDDLEBURY COLLEGE. A non-sectarian co-educational institution at Middlebury, Vt. In the fall of 1919 there were 389 students, 201 men and 188 women. The enrollment for the summer session was 298. There were 43 members in the faculty. During the year there have been added to the faculty teachers in bacteriology, forest management, Spanish, chemistry, Greek, and singing. The endowment is \$1,497,331; the expenses for 1918-19 were \$120,284. The library contains 46,000 volumes. The college was founded in 1800. President, John Martin Thomas, D.D., LL.D.

MILITARY ACADEMY, UNITED STATES. See UNITED STATES MILITARY ACADEMY.

MILITARY BRIDGES. See BRIDGES.

MILITARY PROGRESS. The year 1919 was distinguished in a military way by the effort made by all nations, to "clean up" as it were, after the world war. As was logical, this effort was conditioned by the abnormal situation that followed on the heels of the armistice. No real peace was established; many questions, some of them of the deepest importance, were left unsettled. The treatment of these questions belongs elsewhere; we may however mention Fiume, the Balkans, Russia and Shantung, first to show how widespread was the unsettled state of the question and next, to point out that unless the problems involved in these questions are correctly solved, the world had best lay its account to face future wars, some of them probably not remote in point of time.

I. THE UNITED STATES

DEMILITARIZATION AND HEALTH. In the United States, the great military event of the year was the repatriation of our men, with demobilization of the huge army we had raised. The task was successfully accomplished. We naturally cannot attempt here to go into all of the details of the process. After the signing of the armistice, it was of course necessary to reverse the machinery used in dispatching men to France. This reversal had to do not only with the repatriation of our men, but also with the closing of all our accounts, the settlement of contracts, the disposition of vast stores accumulated in France and in the States. The general plan of demobilization of the Emergency Army was to transfer the men before discharge to the demobilization camp in or nearest the state of origin and then discharge them. In all thirty-two (32) camps were used; these had been mobilization camps. Simultaneously with the return of our men overseas, began the demobilization of the temporary forces in the United States. These left the service by complete organizations as their services could be spared. In respect of the men from overseas, the greatest care was taken to protect the country against the impor-

tation of contagious or infectious diseases. Men so affected were held by the government until cured, or until their condition ceased to be a menace to public health. To the careful examination made abroad, was added, on the arrival in the United States of the troops, an equally careful examination (disinfection, etc.). *Pari passu* with this matter of health, the most important of all to the public, went as already stated questions of an administrative nature involving pay, records, closing of accounts, liquidation of responsibilities, in respect of all of which it may be asserted, that as the numbers involved were vastly greater than any before recorded in our military history, so were the dispatch and accuracy with which the business was done.

The following table, taken from the report of the Secretary of War for 1919, shows the number of officers and enlisted men discharged, by months, from the date of the signing of the armistice.

Month	Officers		Enlisted men	
	Number	Cumulative	Number	Cumulative
1918				
Nov. 11-30....	593	593	43,000	43,000
December	37,048	37,636	609,000	652,000
1919				
January	23,563	61,199	358,000	1,010,000
February	14,913	76,112	263,000	1,273,000
March	11,479	87,591	263,000	1,536,000
April	12,185	99,776	298,000	1,834,000
May	14,622	114,398	383,000	2,217,000
June	13,588	127,986	391,000	2,608,000
July	16,404	144,390	361,000	2,969,000
August	15,986	160,376	151,000	3,120,000
September	8,716	169,092	73,000	3,193,000
October	8,690	177,782	33,000	3,226,000
Nov. 1-10.....	2,018	179,800	10,266	3,236,266

Inasmuch as the health of our men, both those returning from overseas and those who never had left the United States was properly an object of concern, it is logical here to set forth in tables the results achieved by our medical corps in maintaining the health of our forces as compared with similar efforts in preceding wars. Properly speaking, these results chronologically

belong to 1918, but as they have only recently been published (Report of the Surgeon General, U. S. A. to the Secretary of War, 1919), they of necessity fall within the compass of the present paper. And apart from this local relation, they present statistics of permanent historic value, and afford food for thought in respect of the future. Table I is from the Report of the Secretary of War for 1919; the others, from the Report of the Surgeon General for the same year. Table V, although covering the same ground as Table I, offers some additions, and is therefore included.

"The following table indicates how the enforcement of sanitary measures during the war has reduced the number of deaths as compared with those of the Civil War and the Spanish-American War."

TABLE I

	Number of deaths that occurred in present war, Sept. 1, 1917-May 2, 1919—Average strength, approximately 2,121,396	Number of deaths that would have occurred if the Spanish-American War death rate had obtained	Number of deaths that would have occurred if the Spanish-American War death rate had obtained
Typhoid fever.....	213	51,133	68,164
Malaria	13	* 13,951	11,317
Dysentery	42	† 63,898	† 6,382
Smallpox	5	9,536	37
Pneumonia	‡ 41,747	‡ 38,962	‡ 6,086
Scarlet fever.....	167	112	222
Diphtheria	100	1,188	149
Tuberculosis	1,220	9,574	† 631
Meningitis	2,137	8,859	4,081
Other diseases....	5,768	84,881	15,587
Total for disease	49,412	227,094	112,656

* Includes malaria and remittent and congestive fevers.

† Includes dysentery and diarrhea.

‡ Includes deaths listed from measles, influenza, empyema, inflammation of the lungs, and pleurisy, as well as pneumonia.

§ Rate low due to short period of war, that the war was during summer months, and tuberculosis sufferers were discharged as soon as diagnosed.

TABLE II

Comparative figures for United States Army, officers and enlisted men, all countries, 1917-18; total United States Army, Civil War, 1861-62; total United States Army, Spanish-American War and Philippine Insurrection, 1898-99.

Diseases	Admissions (did occur)			Ratio per 1000		
	1861-62	1898-99	1917-18	1861-62	1898-99	1917-18
Typhoid and typhus fever.....	40,025	23,110	1,088	70.69	91.22	0.84
Continued congestive fever (typhoid malarial)	23,039	.....	.....	41.84	.....	.....
Yellow fever	382	1,431	.....	.69	5.65	.....
Malarial fevers (all).....	262,912	151,043	14,087	477.49	596.19	4.41
Fevers, undetermined .....	.....	6,841	18,945	.....	27.00	5.93
Diseases of intestines, diarrhea, and dysentery	482,764	101,972	110,272	876.78	402.11	34.48
Erysipelas	5,066	186	2,282	9.20	.73	.71
Scurvy	5,411	.....	20	9.83	.....	.01
Rheumatism and arthritis	88,475	18,860	49,609	160.69	74.44	15.48
Gastritis .....	.....	5,826	31,471	.....	23.00	9.84
Appendicitis .....	.....	622	27,506	.....	2.46	8.60
Smallpox	1,767	489	778	8.21	1.73	.24
Measles	31,847	10,142	98,606	57.84	40.03	30.84
Scarlet fever	208	69	10,352	.38	.27	8.24
Diphtheria	730	117	8,208	1.33	.46	2.57
Mumps	17,474	3,914	195,490	31.74	15.45	61.14
Influenza	34,340	9,872	729,381	62.37	38.97	228.14
Pneumonia (all)	19,284	1,649	67,542	34.93	6.51	21.13
Pleurisy	9,394	972	17,949	17.06	3.84	5.61
Catarrh (rhinitis)	85,677	.....	32,109	155.60	.....	10.04
Bronchitis (all)	60,548	21,004	208,592	109.97	82.91	65.24

Diseases	Admissions (did occur)			Ratio per 1000		
	1861-62	1898-99	1917-18	1861-62	1898-99	1917-18
Tonsillitis and pharyngitis	.....	10,842	188,549	.....	42.80	57.41
Gonorrhea	241,186	16,151	220,348	43.93	63.75	68.92
Syphilis	* 16,198	3,003	54,514	* 29.42	11.85	17.05
Chancroid	.....	7,008	25,761	.....	27.66	8.06
Meningitis	.....	1,184	109	.....	2.06	1.40
Tuberculosis	.....	6,554	967	.....	11.90	9.73
Total diseases	1,680,877	506,018	3,003,253	3,052.74	1,997.35	939.87

* This total and ratio includes chancroid figures.

TABLE III

Showing the number of admissions that would have occurred for diseases as listed and for total diseases during 1917-18 if the same rates had prevailed that did prevail during the Civil War and the Spanish-American War as compared with the actual number of admissions that occurred; total Army.

Diseases	Admissions that might have occurred with rates for 1861-62	Admissions that might have occurred with rates for 1898-99	Admissions that occurred, 1917-18
Typhoid and typhus fever	226,001	291,637	1,083
Continued congestive fever (typhoid malarial)	183,765	.....	.....
Yellow fever	2,205	18,063	.....
Malarial fevers (all)	1,526,572	1,906,066	14,087
Fever, undetermined	.....	86,321	18,945
Diseases of intestines, diarrhea, and dysentery	2,803,134	1,285,577	110,272
Erysipelas	29,413	2,833	2,282
Scurvy	31,427	.....	20
Rheumatism and arthritis	513,738	237,990	49,509
Gastritis	.....	73,532	31,471
Appendicitis	.....	7,864	27,506
Smallpox	10,263	5,530	778
Measles	184,918	127,979	98,608
Scarlet fever	1,215	863	10,352
Diphtheria	4,252	1,470	8,208
Mumps	101,475	49,394	195,490
Influenza	199,401	124,590	729,361
Pneumonia (all)	111,674	20,812	67,542
Pleurisy	54,542	12,276	17,949
Catarrh (rhinitis)	497,465	.....	32,109
Bronchitis (all)	351,582	265,069	208,592
Tonsillitis and pharyngitis	.....	136,834	183,549
Meningitis	6,585	1,374	4,485
Tuberculosis	38,045	12,212	31,106
Total admissions	9,759,847	6,385,683	3,003,253

TABLE V

Showing the number of deaths that would have occurred for the diseases as listed and for total diseases during 1917-18 if the same rates had prevailed that did prevail during the Civil War and the Spanish-American War as compared with the actual number of deaths that occurred; total Army.

Diseases	Deaths that might have occurred with rates for 1861-62	Deaths that might have occurred with rates for 1898-99	Deaths that occurred, 1917-18
Typhoid and typhus fever	62,694	30,916	158
Continued congestive fever (typhoid malarial)	8,005	.....	.....
Yellow fever	543	2,525	.....
Malarial fevers (all)	12,084	5,594	81
Diarrhea, dysentery, and enteritis	33,153	6,170	250
Erysipelas	1,694	63	81
Smallpox	2,845	1,342	8
Measles	6,649	1,342	2,455
Scarlet fever	95	95	317
Diphtheria	689	131	136
Mumps	127	.....	161
Influenza	95	68	23,021
Pneumonia	20,077	2,973	16,732
Pleurisy	735	95	276
Bronchitis (all)	1,374	81	436
Catarrh (rhinitis)	31	.....	6
Tuberculosis	7,800	1,182	1,114
Tonsillitis and pharyngitis	.....	.....	149
Meningitis, epidemic, and infectious	2,291	1,406	1,701
Total deaths	186,037	62,215	50,714

Certain conclusions should be stated. During the World War negro troops from the south had far higher rates of admission for pneumonia and tuberculosis with higher death and discharge rates for both of these diseases, than was the case with white troops. "For venereal diseases

TABLE IV

Comparative figures for United States Army, officers and enlisted men, all countries, 1917-18; total United States Army, Civil War, 1861-62; total United States Army, Spanish-American War and Philippine Insurrection, 1898-99.

Diseases	Deaths (did occur)			Ratio per 1000		
	1861-62	1898-99	1917-18	1861-62	1898-99	1917-18
Typhoid and typhus	11,424	2,450	158	19.61	9.67	0.05
Continued congestive (typhoid malarial)	546	.....	.....	.94	.....	.....
Yellow fever	100	199	.....	.17	.79	.....
Malarial fevers (all)	2,950	443	31	3.78	1.75	.01
Diarrhea, dysentery, and enteritis	6,040	487	250	10.37	1.93	.08
Erysipelas	307	5	31	.53	.02	.01
Smallpox	517	107	8	.89	.42	.00
Measles	1,211	107	2,455	2.08	.42	.77
Scarlet fever	15	7	817	.03	.03	.10
Diphtheria	119	9	136	.20	.04	.04
Mumps	24	.....	161	.04	.....	.05
Influenza	15	5	28,021	.03	.02	7.20
Pneumonia	3,658	235	16,732	6.28	.93	5.28
Pleurisy	136	8	276	.23	.01	.09
Bronchitis (all)	252	2	436	.48	.00	.14
Catarrh (rhinitis)	6	.....	6	.01	.....	.00
Tuberculosis	1,420	95	1,114	2.44	.37	.85
Meningitis, epidemic and infectious	422	112	1,701	.73	.44	.53
Total deaths	83,894	4,931	50,714	58.19	19.46	15.86

the rate for the negro troops was out of all proportion to that for the whites." For troops stationed in the United States, this rate was seven times as great for negroes as for whites. In general, even after excluding negroes, admission rates for infectious diseases were higher for white troops from the south than for white troops from any other part of the country.

Typhoid fever was of no importance in the World War. Had the admission rates of 1898-1899 prevailed in 1917-1918, admissions would have been 291,637 instead of the actual number, 1083. Similarly for deaths, there would have been 30,196 instead of 158. Measles was much better controlled: on the other hand admission rates for scarlet fever, diphtheria and mumps were all higher during the late war than during either the Civil or the Spanish-American. In general, the so-called "Camp diseases" (typhoid fever, malaria, and dysentery) were practically eliminated. Other diseases present equally interesting comparisons, but we cannot reproduce them here. To sum up: "If the rates for admissions and deaths had prevailed during the late war as during the Civil War, there would have been 9,759,847 admissions and 186,037 deaths; and if the same as for the Spanish-American War, 6,385,683 admissions and 62,215 deaths. As it was there were 3,003,253 admissions and 50,714 deaths. It may then be said with all assurance that preventive medicine resulted in the saving of 6,756,594 cases of sickness and 135,323 deaths, as compared with the Civil War days, and 338,243 cases of sickness and 11,501 deaths, as compared with the Spanish-American days. Had it not been for influenza and pneumonia the total rates for the late war would have, indeed, been very small for admissions and more so for deaths." (Surgeon General's Report, 1919.)

Demobilization implies reduction. Accordingly, many officers promoted during the emergency to higher grades found themselves on their return home reduced to their original grades, while other officers who had never gone abroad were still left in the higher grades to which they also had been advanced. There was no denying the fact that this difference produced a feeling in the service that injustice had been done. The fact is mentioned here simply because such feeling, by producing discontent, unquestionably affects the morale of the service.

Demotions since Nov. 11, 1918, were as follows:

PERMANENT GRADE

	Brig.- Gen.	Col.	Lieut.- Col.	Maj.	Capt.	1st Lt.	2d Lt.	Total
Maj.-Gen.	5	27	1	..	..	..	..	33
Brig.-Gen.	..	104	77	48	3	..	..	232
Colonel	..	..	150	260	102	..	2	514
Lieut.-Col.	..	..	..	70	249	1	..	320
Major	..	..	..	..	337	24	2	363
Captain	..	..	..	..	..	306	24	330
1st Lieut.	..	..	..	..	..	..	95	95
Totals..	5	131	228	378	691	331	123	1,887

Demotions, by permanent grade since Nov. 11, 1918, were as follows:

	Holding advanced rank Nov. 11	Demoted since Nov. 11	De- moted P. O.
Permanent grade			
Colonel	167	131	78
Lieutenant-Colonel	364	228	63

	Holding advanced rank Nov. 11	Demoted since Nov. 11	De- moted P. O.
Permanent grade			
Major	898	378	42
Captain	2,560	691	27
Brigadier-General	26	5	20
1st Lieutenant	1,868	331	18
2nd Lieutenant	1,736	123	7
Major-General	2	0	0
Totals	7,621	1,887	25

Another form of reduction was due to the initiative of officers themselves in resigning by the 24th, 2146 officers had resigned, 497 of whom were permanent and 1649 provisional. These numbers bear all records. More officers resigned in one year than had before resigned since the foundation for government. Various causes were assigned for this extraordinary phenomenon, the chief among them being inadequacy of the officer's pay to meet the ever-rising cost of living. The modest increase of pay granted in 1908, even then inadequate, was simply swamped by the reduced purchasing power of the dollar. In consequence of this reduction, officers practically found their pay halved. Congress gave signs of a desire to correct this situation by the introduction of bills designed to improve it. One of these, the Wadsworth bill, proposed a flat increase of 10 per cent with the addition of an allowance of rations varying with the rank of the officer, and adjustable by presidential order according to the fluctuation of the cost of supplies. But the end of the year came without relief.

POST-WAR LIQUIDATION. No review of the year's progress, even so brief a one as this, can omit the work done by the War Department in the settlement of war contracts, and of other administrative matters suddenly checked by the signing of the armistice. Production of war materials had to be curtailed with the least possible detriment to industrial conditions. Roughly the process followed was to taper off so that the government should not have on its hands enormous quantities of half-finished products useful for neither war nor peace. The contracts of the War Department to be tapered off, would, if carried out, have called for an expenditure of over \$6,000,000,000. The manufacturers came to the rescue by accepting the War Department programme in the proper spirit, so that, all things considered, the shift from war industry to peace commercial conditions was effected without especial hardship. Closely related to the question of production was that of the adjustment of relations between the government on the one hand and the contractors on the other. This adjustment is—for of course it is not yet accomplished—in the hands of the War Department Claim Board, assisted by district or zone boards in the business centres of the country. In case of disagreement, an appeal lies to the Board of Contract Adjustment, composed of experienced lawyers. And as the Comptroller of the Treasury had ruled that "the law forbade the payment of any compensation for the uncompleted portion of a terminated agreement" not in writing in the form required by statute, the Act of Mar. 2, 1919, authorized the Secretary of War "to adjust any agreement, express or implied, entered into for the prosecution of the war, prior to Nov. 12, 1918, and not executed in the manner prescribed

by law, provided that expected profits should not exceed a reasonable remuneration for work done and expenses incurred. To the Court of Claims was given jurisdiction of those cases in which the action of the Secretary of War should be rejected by claimants. Some idea of the work involved in the matter in hand may be formed from the following Table,¹ of date Nov. 1, 1919.

Total number of contracts and agreements necessitating settlement.....	24,988
Contracts and agreements settled and adjusted	22,596
Uncompleted portion of contracts and agreements already settled.....	\$2,091,435,426.50

UNITED STATES

	Cost to Government	Recovery	Percentage
Sales and transfers with funds	\$596,000,000	\$453,000,000	76.0
Transfers without funds	66,000,000	66,000,000	100.0
Contracts not reported as sales to date	90,000,000	45,000,000	50.0
Old sales, per report of Dec. 2, 1918	*150,000,000	123,000,000	82.0
Total	\$902,000,000	\$687,000,000	75.3

OVERSEAS

	Cost	Replacement	Recovery	Per cent of recovery to cost	Per cent of recovery to replacement
French sales	\$1,400,000,000	\$800,000,000	\$400,000,000	28.0	50
Third Army material	100,000,000	60,000,000	46,650,000	47.0	77
Poland	50,000,000	.....	50,000,000	100.0	..
Spain	5,500,000	.....	5,500,000	100.0	..
Belgium	25,000,000	.....	25,000,000	100.0	..
Miscellaneous	100,000,000	.....	100,000,000	100.0	..
Total	\$1,680,500,000	.....	\$627,150,000	37.3	..

* Estimated.

Amount approved for payment in final settlement of contracts and agreements already completely adjusted.....	\$252,160,382.42
Amount already approved for payment in partial settlement of contracts and agreements not yet completely adjusted	\$78,942,212.70
Per cent of amount paid or approved for payment in final settlement to uncompleted portions of contracts and agreements settled	12.5

The liquidation of international obligation was entrusted to two agencies, the United States Liquidation Commission—War Department, and the other, a special representative of the Secretary of War. This Commission also undertook the task of disposing of army stores in France, England and occupied German territory. These stores "consisted of fixed works such as docks, warehouses, refrigerating plants, power plants, repair shops, manufacturing establishments, additions to trackage, bridges and other railroad facilities, telegraph and telephone lines and exchanges, and even more extensive forms of movable property, including practically every kind of equipment and supplies used by an army operating at a place remote from its base. These movable supplies included railroad engines, cars, cranes, special appliances built in the United States and adapted to European gauge, motor transport equipment in all stages of preservation and repair, from that practically worn out to the new equipment in storage warehouses not yet assembled; machine tools collected for repairing ordnance, motor transport, airplanes, and Signal Service equipment; cloth-

ing, new and salvaged; and foodstuffs, often in containers of special construction and size, packed for overseas transportation but not in a form for ready retail commercial disposition."¹

Only a small part of this vast amount of material could be returned to the United States. Surplus medical and surgical supplies were turned over to the American Red Cross and some sales made to various European nations on terms of credit; the remainder was sold to the French government for \$400,000,000. The following tables, from the Report of the Secretary of War exhibit the results of the sales of material, at home and abroad.

MILITARY EDUCATION IN THE ARMY. As was to be expected, the great subject of military education, in the light of experience gained by our share in the World War, received the attention of the War Department. Its views are summed up in a general order (G. O. 112, W. D., Sept. 25, 1919). Under this order, the system approved embraces for officers:

- (a) Basic courses at Special Service Schools.
- (b) Unit Schools.
- (c) Advanced courses at Special Service Schools.

- (d) General Service Schools.

The instruction of cadets will as formerly be given by the United States Military Academy. Enlisted men are to be instructed in

- (a) Post Schools.
- (b) Unit Schools.
- (c) Special Service Schools.

Unit Schools include all schools for officers that are under the direct control of territorial or tactical commanders. They have for primary object "The instruction and training of officers of all grades with a view of securing uniform and efficient training of the troops or personnel under their respective commands." Hence the work of these schools will be closely coördinated with the schedules or training of the troops or personnel under the Student officers. Special Service Schools will be maintained for each arm or service: to those in existence before the war were added Signal Corps, Air Service, Tank Corps, Motor Transport Corps, and Ordnance Department Schools. These schools are to be under the supervision and control of the chiefs

¹ Report of Secretary of War, 1919.

¹ Report of Secretary of War, 1919.

of the respective arms and services where possible, and otherwise, of the Chief of Staff. These Service Schools offer first a basic course of not more than one year's duration, for officers upon their entry into the army, and next, advanced courses in certain cases.

The General Service Schools, under the Chief of Staff, consist of: (a) The School of the Line; (b) The General Staff School; (c) The General Staff College (formerly the Army War College at Washington). The first two are to be at the same place under the same Commandant. The course at the General Service Schools is of four years, the first at the School of the Line, the second at the General Staff School, the third with troops of arms other than those with which the student has previously served, and finally the fourth at the General Staff College. The School of the Line trains officers (a) in the "Combined use of all arms and services functioning with a division," and (b) in the duties of field officers in respect of Army Education and training. The purpose of the General Staff School is to train selected officers for duty as General Staff Officers with troop units, and for higher tactical command. It offers special courses for General Officers and other selected officers of the technical and administrative services. Finally the General Staff College is to train selected officers for duty with the War Department General Staff, and for high command.

Post Schools are to give general educational and vocational training to men in the ranks, while the Unit Schools will prepare non-commissioned officers, selected privates and enlisted specialists for the training or work in progress. The Special Service Schools are to give training to non-commissioned officers in the duties of junior officers of the respective arms, and special training to selected men in the duties of non-commissioned officers. Vocational training was considered by the Congress sufficiently important to justify an appropriation of \$2,000,000 for the fiscal year ending June 30, 1920. The courses outlined by the War Department (Bulletin No. 33, W. D., Sept. 30, 1919) were no fewer than seventeen (17) in number. We can not here mention them all, but they included electricity, building, leather, machinery, agriculture, business. In all cases, the purpose in view was not only to increase the value of the soldier to the army, but to make him a more valuable civilian upon the completion of his military service. The programme thus briefly outlined is most comprehensive: inspired by the weaknesses and defects revealed by our experience in the World War, it will be many years before it can be carried out.

MILITARY POLICY OF THE UNITED STATES. It is undeniable that the World War increased, whether we admit it or not, our responsibilities and obligations as a world power. Hence the sharpened interest in the question of our military policy, a question never really broadly and intelligently discussed either in Congress or out of it. By this we mean that the question has never reached the dignity of a national issue; our people as a whole, take no interest in it. It was hoped of course that the war would bring the matter to a head, that our experience and the price we paid for it would produce a change of heart. But, as a service journal remarks: It is impossible to escape the conviction, after

reading the questions asked and the opinions expressed by our Congressmen during the recent series of hearings on army reorganization legislation that the spectre of the standing army is as firmly fixed in the Congressional mind now as it ever was and that the opposition to the professional soldier is as deeply rooted. It is a pity, a profound pity. But it is true. And the only relief that both the army and navy can have from this lies in the hope that our experience in the World War may have educated the American people in military matters to a greater degree than ever before and a reaction to this will be felt in Congress. Unless this phenomenon occurs any marked improvement in our military policy is out of the question.¹

When the armistice was signed we had but one army, for the Regular Army, the National Guard and so-called National Army had been fused into one service, the Army of the United States. By far the vast majority of the men composing this army were to serve only during the war, and the law required the discharge of all such men four months after the formal promulgation of peace. Demobilization would therefore leave as the military establishment of the country, at a critical time too, a mere handful of men of the Regular Army. Hence Congress authorized the reopening of enlistments in this army as determined by the National Defense Act for either one- or three-year periods. The answer to the resulting call for enlistment was gratifying. Congress moreover authorized and directed that the Secretary of War maintain until June 30, 1920, "such commissioned personnel in addition to the officers of the permanent establishment and to retain at their temporary grades such officers of the Regular Army as in his judgment may be necessary for the proper performance of the functions of the military establishment. *Provided* that after Oct. 31, 1919, the total number of commissioned officers exclusive of retired officers and disabled emergency officers awaiting discharge upon completion of treatment for physical reconstruction, shall at no time exceed 18,000. *And provided further*, That one thousand two hundred emergency officers shall be assigned to the Air Service, of whom not less than 85 per centum shall be duly qualified fliers."

But obviously such legislation was only a stop gap. The great question of military policy remained untouched. The War Department, therefore, mindful of its responsibility in the premises, submitted a bill calling for a regular establishment of 500,000 men, and providing for the compulsory military training, for three months annually, of the youths of the country.

Another purpose of the bill was to reorganize the War Department by strengthening the General Staff in its control of the entire military establishment. The arguments in favor of the bill were strongly set forth in the Secretary's Report, but the bill nevertheless received but little support in any other quarter. Other bills were likewise submitted, for example one by the Military Training Camps Association. This provided for an army of 225,000 and for six months' military training by the young men of the country. Finally according to press reports, "legislation, which would amount to a virtual reorganization of the army, with protection from outside attack as a primary purpose and with

¹ *Army and Navy Journal*, December, 1919.

compulsory military training for boys from 18 to 21 years of age as a leading feature, had been agreed upon tentatively by the Senate military sub-committee considering a permanent military policy for the nation."

This bill called for a standing peace army of 280,000 men, reinforced, so to say, by a "reserve" or "citizens' army." To this "reserve" army would belong the National Guard. Youths between 18 and 21 years of age would be required to take four months' military training either in the Regular Army or in the National Guard. This training completed, these recruits would be placed in a reserve for five years, liable for military service only in case of war, but called out to attend two annual maneuvers of at least two weeks each during this period. Compulsory military training would be required, but not compulsory military service. A departure was the substitution of the word "service" for "corps," to designate departments and corps, such as the quartermaster, the ordnance, and other similar branches. The chemical warfare service was to be separate instead of forming a part of the engineer corps. These announcements were of date December 21st. Later (Jan. 3, 1920) they were amplified. Our general staff was to be modified on the model of the French, and an Under Secretary of War was provided, specially charged with the solution of the industrial and administrative problems connected with the equipment of an army. Army training was to include vocational and agricultural training. The air service was to be a separate branch of the professional army.

To insure promotion of efficient officers and elimination of incompetent ones, the bill provided for annual classification of officers into three classes, Class A being those who have earned promotion to the next higher grade; Class B those not yet ready for promotion, and Class C those who should be eliminated. Class C officers were to be discharged if their service had not been "honest and faithful," otherwise they were to be placed on the retired list.

Simultaneously with these Senate proposals appeared those of the House for an army of 300,000 men with 17,000-18,000 officers. Certain

other provisions are worthy of notice. An elimination system was provided to rid the service of officers whose records, etc., were unsatisfactory. In certain departments, e.g. the signal corps, the Judge Advocate's, etc., officers were to be commissioned permanently above the grade of captain. And whereas heretofore the details of organization had always been rigidly prescribed by the law and in the law, the new bill proposed to leave these details to the discretion of the President. For example, the infantry section of the law provided for a chief of infantry (major general), with an assistant (brigadier general) chief of tank corps; for 3500 officers for all grades from colonel to second lieutenant; and for 100,000 men to be organized into such infantry, tank, and machine gun units as the President might prescribe. Provision would be made for a chief of each arm of the service, and the restrictions placed by the National Defense act on the general staff would be reenacted. The National Guard would be left where this act placed it. The officers of the Philippines would cease to exist as such, and these scouts would be officered by officers of the Regular Establishment.

In respect of promotion, the Senate stood for selection, the House for the "single list" system.

MISCELLANEOUS. We shall conclude this review of the United States by assembling certain statistics, etc., useful for record and for reference, but difficult to classify. The late war was officially designated "The World War" (G. O. 115, W. D., Oct. 7, 1919), and the battles and campaigns of the United States were listed (G. O. 122, W. D., Oct. 30, 1919). This list covers all our campaigns from the Revolution to and including the World War. Of the 20 regular divisions authorized, 7 reached France; at the time of the armistice, the remaining 13 were in process of organization and training in the States. All of the National Guard divisions reached France, as did those of the National Army from the 76th to the 92d. The following table¹ gives the divisions by groups, shows the camps at which they were trained, and the States from which drawn:

Division	Camp	State from which drawn
Regulars:		
First	France	Regulars.
Second	do	Do.
Third	Greene, N. C.	Do.
Fourth	do	Do.
Fifth	Logan, Texas	Do.
Sixth	McClellan, Ala.	Do.
Seventh	MacArthur, Texas	Do.
Eighth	Fremont, Cal.	Do.
Ninth	Sheridan, Ala.	Do.
Tenth	Funston, Kan.	Do.
Eleventh	Meade, Md.	Do.
Twelfth	Devens, Mass.	Do.
Thirteenth	Lewis, Wash.	Do.
Fourteenth	Custer, Mich.	Do.
Fifteenth	Logan, Texas	Do.
Sixteenth	Kearny, Cal.	Do.
Seventeenth	Beauregard, La.	Do.
Eighteenth	Travis, Texas	Do.
Nineteenth	Dodge, Iowa	Do.
Twentieth	Sevier, S. C.	Do.
National Guard:		
Twenty-sixth	Devens, Mass.	New England.
Twenty-seventh	Wadsworth, S. C.	New York.
Twenty-eighth	Hancock, Ga.	Pennsylvania.
Twenty-ninth	McClellan, Ala.	New Jersey, Delaware, Virginia, Maryland, District of Columbia.
Thirtieth	Sevier, S. C.	Tennessee, North Carolina, South Carolina, District of Columbia.

¹Report of the Secretary of War, 1919.

<i>Division</i>	<i>Camp</i>	<i>State from which drawn</i>
Thirty-first	Wheeler, Ga.	Georgia, Alabama, Florida.
Thirty-second	MacArthur, Texas.	Michigan, Wisconsin.
Thirty-third	Logan, Texas.	Illinois.
Thirty-fourth	Cody, N. M.	Nebraska, Iowa, South Dakota, Minnesota.
Thirty-fifth	Doniphan, Okla.	Missouri, Kansas.
Thirty-sixth	Bowie, Texas.	Texas, Oklahoma.
Thirty-seventh	Sheridan, Ala.	Ohio.
Thirty-eighth	Shelby, Miss.	Indiana, Kentucky, West Virginia.
Thirty-ninth	Beauregard, La.	Alabama, Mississippi, Louisiana.
Fortieth	Kearny, Cal.	California, Colorado, Utah, Arizona, New Mexico.
Forty-first	Fremont, Cal.	Washington, Oregon, Montana, Idaho, Wyoming.
Forty-second	Mills, N. Y.	Various States.

National Army:		
Seventy-sixth	Devens, Mass.	New England, New York.
Seventy-seventh	Upton, N. Y.	New York City.
Seventy-eighth	Dix, N. J.	Western New York, New Jersey, Delaware.
Seventy-ninth	Meade, Md.	Northeastern Pennsylvania, Maryland, District of Columbia.
Eightieth	Lee, Va.	Virginia, West Virginia, western Pennsylvania.
Eighty-first	Jackson, S. C.	North Carolina, South Carolina, Florida, Porto Rico.
Eighty-second	Gordon, Ga.	Georgia, Alabama, Tennessee.
Eighty-third	Sherman, Ohio.	Ohio, western Pennsylvania.
Eighty-fourth	Zachary Taylor, Ky.	Kentucky, Indiana, southern Illinois.
Eighty-fifth	Custer, Mich.	Michigan, eastern Wisconsin.
Eighty-sixth	Grant, Ill.	Chicago, northern Illinois.
Eighty-seventh	Pike, Ark.	Arkansas, Louisiana, Mississippi, southern Alabama.
Eighty-eighth	Dodge, Iowa.	North Dakota, Minnesota, Iowa, western Illinois.
Eighty-ninth	Funston, Kan.	Kansas, Missouri, South Dakota, Nebraska.
Ninetieth	Travis, Texas.	Texas, Oklahoma.
Ninety-first	Lewis, Wash.	Alaska, Washington, Oregon, California, Idaho, Nebraska, Montana, Wyoming, Utah.
Ninety-second	Funston, Kan.	Colored, various States.
Ninety-third	Stuart, Va.	Do.

The following statement (report of the Adjutant General, 1919) shows the number of national guardsmen who were in the federal service as enlisted men during the period of the emergency, classified according to the States or Territories from which they entered the service:

<i>States, etc.</i>	<i>Enlisted strength of National Guard on April 2, 1917</i>	<i>Total number of voluntary enlistments in National Guard subsequent to April 2, 1917</i>	<i>Total</i>	<i>Enlisted strength of National Guard on April 2, 1917</i>	<i>Total number of voluntary enlistments in National Guard subsequent to April 2, 1917</i>	<i>Total</i>
Alabama	4,181	3,020	7,201			
Alaska		5	5			
Arizona	456	517	973			
Arkansas	1,192	6,939	8,131			
California	4,466	8,717	13,183			
Colorado	1,290	3,568	4,858			
Connecticut	3,893	4,378	8,271			
Delaware	544	1,094	1,638			
District of Columbia	1,933	1,295	3,228			
Florida	1,173	2,685	3,858			
Georgia	3,885	3,283	7,168			
Hawaii	4,237	145	4,382			
Idaho	962	1,276	2,238			
Illinois	6,672	17,836	24,508			
Indiana	3,975	5,730	9,705			
Iowa	2,231	8,873	11,104			
Kansas	1,839	8,840	10,679			
Kentucky	1,980	5,321	7,301			
Louisiana	1,690	2,641	4,331			
Maine	1,968	3,767	5,735			
Maryland	3,330	4,800	8,130			
Massachusetts	9,972	10,962	20,934			
Michigan	3,720	6,257	9,977			
Minnesota	2,495	5,147	7,642			
Mississippi	1,292	4,938	6,230			
Missouri	5,018	11,513	16,531			
Montana	959	1,147	2,106			
Nebraska	1,300	4,413	5,713			
Nevada		38	38			
New Hampshire	1,589	1,878	3,467			
New Jersey	6,110	8,800	14,910			
New Mexico	41	1,741	1,782			
New York	23,495	27,730	51,225			
North Carolina	3,123	6,105	9,228			
North Dakota	613	3,320	3,933			
Ohio	8,437	21,009	29,446			
Oklahoma	493	3,153	3,586			
Oregon	2,424	3,071	5,495			
Pennsylvania	14,128	18,757	32,885			
Porto Rico		5	5			
Aggregate	164,292	296,756	461,048			

The question of proper organization for the air service was much discussed. Some advocated an independent air service, others that each great subdivision of the national defense, the army and the navy, have its own air service, and some even went so far as to propose that the air service be made a new department of the government, with a member of the cabinet as its head. The end of the year brought no decision. At the close of the year the estimated strength of the army was 225,114. Of this number, 169,994 were in the United States and 19,468 in Europe. All our troops had been withdrawn from Russia, but we still maintained an expeditionary force in Siberia.

II. FOREIGN COUNTRIES

FRANCE. Universal military service had not yet come to an end, but its burdens were to be considerably lightened. The army was to be brought down to a strength of 350,000 men, 200,000 to be men doing compulsory service; 50,000 long service men; 50,000 colonial troops; and 50,000 commissioned and non-commissioned officers adopting the army as a career.

The distribution of this army was to be completely changed in order to meet the change in military conditions; 200,000 men were to be kept in Alsace-Lorraine and to guard the Rhine. This meant that the small internal garrisons of pre-war days were to be abolished. The border garrison was further to be supported by some 100,000 troops quartered in "carefully selected strategic centres in easy communication with the Rhine." The forces on the Rhine itself were to be so disposed as at all times to be ready to repel aggression and to interfere with the mobilization and advance of the enemy, i.e. the Germans. And as the first attack would be from the air, so to oppose it would be provided: (a) anti-aircraft batteries; (b) pursuit squadrons; (c) bombing squadrons. Heavy artillery batteries, both fixed and mobile, were to be kept on a war footing, in order to open on all hostile targets within range, and the tank corps would be called into action. (*Army and Navy Journal*, December, 1919.)

Some details were given in the bill introduced September 11th, "for a preliminary adaptation of France to the Covenant of the League of Nations." All citizens were to render military service for a period of 28 years, beginning at the age of 20. The period of service with the colors was to be eight months, during which every man was to have 30 days' leave. This eight-month service was to be followed by four periods of supplementary training of 15 days each, spread over the first 22 of the 28-year period. On reaching the age of 42, men were to be exempt. Young men of 20 forming each annual class were to be divided into two series each year, so as to furnish 100,000 men with the colors at the same time. Voluntary enlistment was limited to cavalry and colonial army. Youths under 20 were to receive preparatory physical and military education. (*Journal of the R. U. S. I.*, November, 1919.)

"On September 19th the Sub-Committee on Armaments and Troops recommended: (a) Conscription annually for 1 year of 200,000 men instead of 600,000 as formerly; (b) enlisting and re-enlisting 150,000; (c) 20 divisional districts to be retained, H.Q. 21st moved from Epinal to Strassburg. In north Africa, 2 army corps at Algiers and Rabat, 1 of colonial troops. For home peace establishment, per army corps, 1 native division instead of 2, plus reserve division. On eastern frontier, 2 active divisions, 1 at full strength on the Rhine, plus 1 north African and 1 colonial division. Total on Rhine, 6 divisions. Cavalry reduced to 4 divisions, of which 1 on Rhine; (d) Territorial and reserve forces (2,000,000) for emergencies. (e) Peace footing, 350,000 men; war, 1,300,000."

CASUALTIES. "On July 1st casualties during the war were returned as 1,039,600 killed, 245,900 missing, 2,560,000 wounded; total, 3,845,500. Native troops, 67,000 killed, 140,000 wounded; total, 207,000. 7,935,000 men, 475,000 natives, were mobilized. German killed and missing were estimated at 2,200,000. Germany, with a population of 67,800,000, mobilized 11,200,000 men; France, with 39,600,000, mobilized 8,400,000. The French effort was the greater, losses lower. Amongst native troops, casualties of officers were 17.7 per cent, of men, 6." (*Journal of the R. U. S. I.*, November, 1919.)

GREAT BRITAIN. Since the armistice nearly 3,000,000 men had been demobilized, leaving

1,200,000 in the army, including the 209,000 volunteer regulars. These were distributed as follows. Army of the Rhine, including troops in France and Flanders, 420,000. Army of the Black Sea, 41,000. Army of the Middle East, 105,000. Army of India, including demobilizable men temporarily detained, 76,000. Home army, including Ireland, the volunteer regular army being formed, and about 165,000 sick, wounded, or awaiting demobilization, 534,000. Detachments in Russia, 17,000. Detachments in Italy, 7000.

Assuming peace was ratified by August 1st, the following reductions were proposed. Army of the Rhine, from 10 to 2 divisions by late autumn, 150,000 men. In France and Flanders, 100,000 men now clearing up and guarding prisoners. Army of the Black Sea, 10,000 men liberated by the evacuation in autumn of the Caucasus. Russia, all troops, except those volunteering for the military missions, to be brought home by November 1st: those who served last winter, during September. Home, 200,000 men as German prisoners were repatriated. Total reductions, about 600,000.

The new regular army was 250,000 strong, including 25,000 men reengaged from the armies of occupation. Unless some unforeseen catastrophe occurred, conscription would pass permanently from the Statute Book at the expiration of the present Military Service Act. "Broadly speaking, we contemplate no army in this country substantially larger than the small army we had when war broke out."

GERMANY. Germany's armed strength was of course limited by the terms of the Treaty of Peace. But some skepticism seemed to exist as to the reduction that Germany would genuinely adopt. Thus "early in September a French estimate placed the number in regular formations at 800,000; composed of six divisions under Gen. von der Goltz in Esthonia, the still undemobilized depôts of the field army, Reichswehr, local troops (Freiwillige), and various reserves. The aim was to use the 100,000 men sanctioned by the Peace Treaty as cadres for a national army, supplemented by the already existing reserves. The Reichswehr contained 50,000 old army N. C. O.s of 7-11 years' service enlisted as privates. The Zeit Freiwillige (temporary volunteers) were veterans with a minimum of six years' service, practiced drill and musketry weekly, kept their arms and equipment at home, and undertook to be available in case of need. The security police was a double of the Reichswehr, strongly organized, and provided with machine-guns, gas, etc.; 200,000 were at Kittowitz, and the same at Hindenburg, recruited from ex-N. C. O.s and men. On mobilization the reserves would be supplied from (a) volunteers, (b) police, (c) veterans and associations classed by regiments as Regimentsvereine and Kriegenevereine." More recently still (Jan. 1, 1920,) Germany's armed forces were estimated by the British war office as amounting to nearly 1,000,000 men, divided into 400,000 regulars; 12,000 shore troops of the regular navy; 40,000-50,000 armed constabulary; 150,000-200,000 temporary volunteers or regular army reserves; 300,000-400,000 civic guards.

REFERENCES. Official reports of the War Department for 1919, especially the excellent report of the Secretary of War; General Orders, etc., of the War Department; *Army and Navy*

Journal; Journal of the Royal United Service Institution.

MILITARY TERRITORY OF THE NIGER. A territory under the government-general of French West Africa (q.v.). Capital, Zinder.

MILITIA. By Nov. 1, 1919, nearly 29 per cent of the national guard units specified in the allotment for the fiscal year 1920, had been extended federal recognition. This allotment was based on the appropriation authorized by Congress. It differed from the original distribution and allotment of different types of tactical units of the various States issued in 1916. Between June 30, 1919, and November 1st, the following States had units recognized: Alabama, 4 units; Florida, 2; Kansas, 4; Missouri, 2; New Jersey, 2; New York, 9; Ohio, 4; Oregon, 4; Rhode Island, 3; Vermont, 1; Virginia, 4; Georgia, 1; Mississippi, 1; Hawaii, 1. The following States utilized the platoon system: Oregon, 1 company; Arkansas, 3; Colorado, 2. Twenty-three States and Porto Rico presented no units for federal recognition.

The enlisted strength of the militia of the States having National Guard units, showing the authorized number and the number present from returns as of Nov. 1, 1919, together with the standing in per cent of authorized strength is stated below.

State	Authorized for fiscal year 1920	Enlisted strength Present from latest returns	Per- centage of au- thorized number
Minnesota	3,659	4,284	117
Texas *	11,427	11,796	103
Oklahoma	8,339	8,056	92
Maine	1,861	1,201	88
Kansas	2,267	1,866	82
Colorado	1,859	1,153	62
Washington	2,138	1,268	59
Tennessee	2,409	1,175	49
Arkansas	1,758	815	46
Iowa	2,545	1,156	45
Oregon	2,179	827	38
New Jersey	2,774	949	34
District of Columbia...	801	258	32
Missouri	4,400	1,298	30
Utah	713	175	25
Vermont	853	205	24
Rhode Island	1,004	222	22
Virginia	2,392	428	18
South Carolina	1,745	287	16
New York	9,478	1,408	15
California	3,302	502	15
Ohio	4,886	750	15
Florida	1,073	156	15
Alabama	2,454	336	14
Mississippi	1,879	104	6
Georgia	3,030	95	3
Hawaii	702	269	38
Other States	49,686	0	0
Total	126,109	36,039	29

* Not given as comparative due to constant changing of units.

On the following page is given the list of State adjutants-general and their addresses as of Oct. 3, 1919:

MILK. See DAIRYING.

MILK BY-PRODUCTS. See DAIRYING.

MILLER, ANDREW. New York publisher and sportsman, died in New York City, December 31. He was born at Hamilton, Ontario, 1857, and graduated at Harvard where he was a classmate of the late Theodore Roosevelt. He joined the staff of *Life* soon after it was begun and became

a part owner. He was afterwards secretary and treasurer of the Life Publishing Company. He was also widely known in sporting circles, having a large racing establishment which included several famous prize-winners.

MILWAUKEE. See SEWERAGE and WATER WORKS.

MINERALOGY. The number of new minerals described in the last year was evidence of the activity that prevailed among students of this science, as well as indicative of the possibilities that exist for new discoveries. Some of the proposed names, however, will hardly pass for independent species, but rather denote varieties of known forms brought to light by refined methods of chemical and physical analysis. The list of new minerals which follows is supplementary to the former lists presented in earlier volumes of the YEAR BOOK. *Cocinerite* is a copper-silver sulphide in the atomic proportions of 4 of copper, 1 of silver, and 1 of sulphur. It has a silver-gray color, metallic luster, and massive structure, not known to occur in crystals. It comes from the Cocinera mine, San Luis Potosi, Mexico. *Chubuite*, an oxychloride of lead, is a yellow, lamellar, probably tetragonal mineral, from Argentina. *Ferrierite* is a zeolite related to mordenite, but contains magnesium in place of calcium. Chemically it is a hydrated silicate of aluminum, magnesium, and sodium; it is white to vitreous in appearance, and forms orthorhombic crystals. The type locality is the north shore of Kamloops Lake, British Columbia. *Högbomite* belongs to the corundum-hematite mineral group, containing the oxides of iron, aluminum, magnesium, and titanium; it occurs as a gangue constituent of the iron ores of the Ruotevare district, Lapland. It is a black metallic to adamantine substance of rhombohedral crystallization. *Mackensite*, an iron black, massive mineral, is essentially a ferric orthosilicate with two molecules of water, found in ores from Sternberg and Bennisch on the Moravian-Silesian border. It is associated with the mineral next described. *Viridite* is an orthosilicate of ferrous iron with three molecules of water, leek green in color, from the same vicinity as mackensite. *Oliverite* and *orvillite* are compounds of zirconium, found in the baddeleyite deposits of Brazil. The former is a hydrated titanate of greenish yellow color; the latter a hydrated silicate. *Racewinit* is a silicate of aluminum and iron with water, found in the Bingham district of Utah. It is brown or yellow in color and coarsely crystalline. *Sobralite* is a member of the pyroxene family, composed of silica in combination with manganese, iron, magnesium and calcium. It is triclinic in form and occurs as a rock ingredient in Södermanland, Sweden. *Zebedassite* is a hydrated orthosilicate of aluminum and magnesium, of white color, that occurs in serpentine at Zebedassi in the Pavese Apennines.

DIAMONDS. Despite the remarkable rise in values which has characterized the recent market, no considerable diamond mining industry has been developed in the United States as a result of the discoveries of the diamondiferous pipes of Arkansas. Practically the whole supply of gem stones still comes from abroad and the trade is under the strict control of the South African syndicate. New discoveries were reported recently in the Belgian Congo, where the occurrences have the same characteristics as

State	The adjutant-general	Address
Alabama	Moon, Hartley A., Brig.-Gen.	Montgomery
Arizona	Harris, Charles W., Colonel	Phoenix
Arkansas	England, Lloyd, Brig.-Gen.	Little Rock
California	Borree, James J., Brig.-Gen.	Sacramento
Colorado	Spangler, Wm. A., Brig.-Gen.	Denver
Connecticut	Cole, George M., Brig.-Gen.	Hartford
Delaware	Wickersham, I. P., Brig.-Gen.	Wilmington
District of Columbia	LaGarde, Richard D., Major	Washington
Florida	Catts, Sidney J., Jr., Brig.-Gen.	St. Augustine
Georgia	Nash, J. Van Holt, Brig.-Gen.	Atlanta
Hawaii	Hayward, Harry S., Colonel	Honolulu
Idaho	Wilson, Albert H., Brig.-Gen.	Boise
Illinois	Dickson, Frank S., Brig.-Gen.	Springfield
Indiana	Smith, Harry B., Brig.-Gen.	Indianapolis
Iowa	Lasher, Louis G., Brig.-Gen.	Des Moines
Kansas	Martin, Charles I., Brig.-Gen.	Topeka
Kentucky	Ellis, J. Tandy, Brig.-Gen.	Frankfort
Louisiana	McCrory, Cecil C., Brig.-Gen.	Baton Rouge
Maine	Presson, George McL., Brig.-Gen.	Augusta
Maryland	Warfield, Henry M., Brig.-Gen.	Annapolis
Massachusetts	Stevens, Jesse F., Colonel	Boston
Michigan	Bersey, John S., Colonel	Lansing
Minnesota	Rhinow, W. F., Brig.-Gen.	St. Paul
Mississippi	Scales, Eric C., Brig.-Gen.	Jackson
Missouri	Clark, Harvev C., Brig.-Gen.	Jefferson City
Montana	Greenan, Phil, Brig.-Gen.	Helena
Nebraska	Paul, Herbert J., Brig.-Gen.	Lincoln
Nevada	Sullivan, Maurice J., Brig.-Gen.	Carson City
New Hampshire	Howard, Charles W., Brig.-Gen.	Concord
New Jersey	Gilkyson, Frederick, Brig.-Gen.	Trenton
New Mexico	Baca, James, Brig.-Gen.	Santa Fe
New York	Berry, Charles W., Brig.-Gen.	Albany
North Carolina	Young, Laurence W., Brig.-Gen.	Raleigh
North Dakota	Fraser, G. A., Brig.-Gen.	Bismarck
Ohio	Layton, Roy E., Brig.-Gen.	Columbus
Oklahoma	Barrett, Charles F., Brig.-Gen.	Oklahoma City
Oregon	Stafrin, Conrad, Brig.-Gen.	Salem
Pennsylvania	Beary, Frank D., Brig.-Gen.	Harrisburg
Rhode Island	Abbot, Charles W., Brig.-Gen.	Providence
South Carolina	Moore, William W., Brig.-Gen.	Columbia
South Dakota	Morris, W. A., Brig.-Gen.	Redfield
Tennessee	Sweeney, E. B., Brig.-Gen.	Nashville
Texas	Harley, James A., Brig.-Gen.	Austin
Utah	Jorgensen, Fred, Major	Salt Lake City
Vermont	Johnson, Herbert T., Brig.-Gen.	Montpelier
Virginia	Stern, Jo Lane, Brig.-Gen.	Richmond
Washington	Moss, Harvey J., Brig.-Gen.	Seattle
West Virginia	Davis, Thomas B., Major (Acting)	Charleston
Wisconsin	Holway, Orlando, Brig.-Gen.	Madison
Wyoming	Weaver, W. K., Brig.-Gen.	Cheyenne
Porto Rico	Wilson, John A., Major	San Juan

those in the Transvaal and Orange Colony. The output of the Congo Mines, still in the early stages of development, has already reached over 100,000 carats a year, so that their productive capabilities are fairly assured. An unusual find was made last year in the Jagersfontein mine, Orange Colony, in the shape of a lively blue stone of 388½ carats. No similar large stone has been reported since the discovery of the famous Cullinan specimen from the Premier mine, Transvaal.

AMBER. In a study of amber—which is not strictly a mineral although used for gem purposes—G. F. Black (*Amer. Min.*) stated that its important properties by which it may be discriminated from other fossil resins are a superior hardness (2-3 on the mineral scale), inferior brittleness, conchoidal fracture, relative resistance to heat, and electrical activity. When rubbed amber gives off an agreeable odor, and it decomposes only at 300° C., when it yields the oil of amber and a black residue known as amber colophony, which dissolved in turpentine becomes the valuable amber varnish. The presence of small cavities may give a cloudy appearance to the material, characteristic of "bony amber." All of the most valuable amber comes from the Baltic coast, notably from the peninsula of Samland, East Prussia, which constitutes the great store house of the world's supply. It is found in Tertiary beds of glauconite, lignite, marl, and sand, which are contemporaneous with the conifer forests that produced the gum. The

lowermost bed, a glauconite sand, contains a clayey seam called blue-earth; this is the main source of the amber, although smaller amounts occur in all the beds. An area of 10 square meters of the blue-earth may contain several thousand kilograms of the resin. The use of amber for ornamentation dates back to the Bronze Age or earlier, as quantities of beads of the Baltic amber have been found in prehistoric burial sites in Great Britain and in the Mediterranean region. An analysis of the amber beads from Mycenæ identifies the material with the Baltic variety, and the same is true of the prehistoric amber ornaments from Northern and Central Italy.

MINERAL PRODUCTION. The following information in regard to mineral production in the United States in 1917 and 1918 is taken from the preliminary report of the United States Geological Survey: The statistics of mineral production in the United States for 1918 show that in the last 10 months before the armistice the mineral industries of the country had become remarkably well adjusted to the extraordinary economic demands of war. Production increased in nearly all the minerals that were directly or indirectly essential to the war, such as mineral fuels, the major base metals, except zinc, and many of the minor base metals, particularly those which are normally imported from distant parts of the world but for which shipping could no longer be spared. The coinage metals declined

MINERAL PRODUCTS OF THE UNITED STATES IN 1917 AND 1918

MINERAL PRODUCTION				430				MINERAL PRODUCTION			
Product	1917	1918	Percentage of Increase or decrease in 1918	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
Aluminum	18,646	24,159,000	29.5	18,646	24,159,000	24,159,000	24,159,000	24,159,000	24,159,000	24,159,000	24,159,000
Antimony	5,199	2,826,350	45.2	5,199	2,826,350	2,826,350	2,826,350	2,826,350	2,826,350	2,826,350	2,826,350
Antimony (2000 pounds)	5,199	2,826,350	45.2	5,199	2,826,350	2,826,350	2,826,350	2,826,350	2,826,350	2,826,350	2,826,350
Bauxite	568,690	3,119,058	446.3	568,690	3,119,058	3,119,058	3,119,058	3,119,058	3,119,058	3,119,058	3,119,058
Cadmium	207,408	305,097	46.3	207,408	305,097	305,097	305,097	305,097	305,097	305,097	305,097
Chromium	43,725	1,049,400	2353.4	43,725	1,049,400	1,049,400	1,049,400	1,049,400	1,049,400	1,049,400	1,049,400
Copper	1,886,120.721	514,911,000	27,298.3	1,886,120.721	514,911,000	514,911,000	514,911,000	514,911,000	514,911,000	514,911,000	514,911,000
Copper, sales value	884,021	83,731,724	9400.3	884,021	83,731,724	83,731,724	83,731,724	83,731,724	83,731,724	83,731,724	83,731,724
Ferroalloys	4,051,440	83,750,700	2043.3	4,051,440	83,750,700	83,750,700	83,750,700	83,750,700	83,750,700	83,750,700	83,750,700
Gold	75,573.207	6,238,360.444	8233.1	75,573.207	6,238,360.444	6,238,360.444	6,238,360.444	6,238,360.444	6,238,360.444	6,238,360.444	6,238,360.444
Iron	38,612,546	1,053,785,975	2703.1	38,612,546	1,053,785,975	1,053,785,975	1,053,785,975	1,053,785,975	1,053,785,975	1,053,785,975	1,053,785,975
Lead	548,450	94,333,000	17111.3	548,450	94,333,000	94,333,000	94,333,000	94,333,000	94,333,000	94,333,000	94,333,000
Lead (refined), sales value	129,405	4,109,722	3172.1	129,405	4,109,722	4,109,722	4,109,722	4,109,722	4,109,722	4,109,722	4,109,722
Manganese ore (35 per cent or more Mn)	880,944	3,406,061	288.3	880,944	3,406,061	3,406,061	3,406,061	3,406,061	3,406,061	3,406,061	3,406,061
Manganese ore (5 to 35 per cent Mn)	402	331,556	82.4	402	331,556	331,556	331,556	331,556	331,556	331,556	331,556
Nickel, value at New York City	38,831	4,023,757	10363.1	38,831	4,023,757	4,023,757	4,023,757	4,023,757	4,023,757	4,023,757	4,023,757
Platinum and allied metals (value at New York City)	86,159	3,808,266	4385.1	86,159	3,808,266	3,808,266	3,808,266	3,808,266	3,808,266	3,808,266	3,808,266
Quicksilver, value at San Francisco, flasks (75 lbs. net)	71,740.362	59,078,100	8365.1	71,740.362	59,078,100	59,078,100	59,078,100	59,078,100	59,078,100	59,078,100	59,078,100
Silver	110	135,600	122.7	110	135,600	135,600	135,600	135,600	135,600	135,600	135,600
Tin (metallic equivalent)	206	32,960	159.9	206	32,960	32,960	32,960	32,960	32,960	32,960	32,960
Titanium ore (rutile)	6,144	6,783,000	110.3	6,144	6,783,000	6,783,000	6,783,000	6,783,000	6,783,000	6,783,000	6,783,000
Tungsten ore (60 per cent concentrates)	584,597	119,258,000	20385.1	584,597	119,258,000	119,258,000	119,258,000	119,258,000	119,258,000	119,258,000	119,258,000
Uranium and vanadium minerals	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Zinc, sales value	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total value of metallic products (approximate)	2,086,233,000	2,153,139,000	3.2	2,086,233,000	2,153,139,000	2,153,139,000	2,153,139,000	2,153,139,000	2,153,139,000	2,153,139,000	2,153,139,000
NON-METALLIC											
Arsenious oxide	6,151	1,118,313	18.1	6,151	1,118,313	1,118,313	1,118,313	1,118,313	1,118,313	1,118,313	1,118,313
Asbestos	1,683	506,056	30.0	1,683	506,056	506,056	506,056	506,056	506,056	506,056	506,056
Asphalt	782,713	8,470,615	1073.1	782,713	8,470,615	8,470,615	8,470,615	8,470,615	8,470,615	8,470,615	8,470,615
Barytes (crude)	206,888	1,171,184	566.3	206,888	1,171,184	1,171,184	1,171,184	1,171,184	1,171,184	1,171,184	1,171,184
Borax (crude)	108,875	3,609,632	3315.1	108,875	3,609,632	3,609,632	3,609,632	3,609,632	3,609,632	3,609,632	3,609,632
Bromine	895,499	492,703	45.1	895,499	492,703	492,703	492,703	492,703	492,703	492,703	492,703
Calcium-magnesium chloride	30,503	451,480	1480.1	30,503	451,480	451,480	451,480	451,480	451,480	451,480	451,480
Cement	91,342,930	123,210,458	33.7	91,342,930	123,210,458	123,210,458	123,210,458	123,210,458	123,210,458	123,210,458	123,210,458
Clay	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Products	248,023,368	228,547,000	-9.9	248,023,368	228,547,000	228,547,000	228,547,000	228,547,000	228,547,000	228,547,000	228,547,000
Raw	3,113,844	8,042,546	258.3	3,113,844	8,042,546	8,042,546	8,042,546	8,042,546	8,042,546	8,042,546	8,042,546
Coal	551,790,563	1,249,272,837	224.6	551,790,563	1,249,272,837	1,249,272,837	1,249,272,837	1,249,272,837	1,249,272,837	1,249,272,837	1,249,272,837
Bituminous	88,939,117	283,650,723	319.3	88,939,117	283,650,723	283,650,723	283,650,723	283,650,723	283,650,723	283,650,723	283,650,723
Pennsylvania anthracite	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total value of non-metallic products (approximate)	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

Product	1917	1918	Increase or decrease in		Percentage of	
	Quantity	Value	Quantity	Value	Quantity	Value
NON-METALLIC						
Coke	55,606,828	b 208,243,017	56,478,185	(f)	+ 1.6	(f)
Diatomaceous (infusorial) earth and tripoli	9 29,102	9 123,784	9 22,947	9 100,992	- 21.1	+ 81.6
Emery and corundum	17,135	241,050	10,422	112,878	- 39.2	- 53.2
Feldspar	141,924	474,767	98,816	428,775	- 30.4	- 9.7
Fluorspar	218,828	2,287,722	263,817	5,465,481	+ 20.6	+ 188.9
Fuller's earth	72,567	772,087	84,468	1,146,354	+ 16.4	+ 48.5
Garnet for abrasive purposes	4,995	198,327	4,696	248,161	- 6.0	+ 25.1
Gems and precious stones .....	.....	131,012	.....	106,523	.....	- 18.7
Graphite:	.....	.....	.....	.....	.....	.....
Amorphous	8,301	73,481	6,560	69,455	- 1.741	- 5.5
Crystalline	10,584,080	1,094,398	12,861,839	1,454,799	+ 21.0	+ 32.9
Grindstones and pulpstones .....	.....	1,147,784	.....	1,776,282	.....	+ 54.8
Gypsum	2,696,226	11,116,452	2,056,462	11,470,004	- 23.7	+ 3.2
Lime	3,786,364	23,807,877	e 3,028,000	e 24,300,000	- 20.0	+ 1.6
Magnesite (crude)	316,838	2,899,818	231,605	1,812,601	- 26.9	- 37.5
Mica:	.....	.....	.....	.....	.....	.....
Scrap	3,429	52,908	2,292	33,130	- 1.137	- 37.4
Sheet	1,276,533	753,874	1,644,200	731,810	+ 28.8	- 2.9
Millstones .....	.....	43,489	.....	92,384	.....	+ 112.4
Mineral paints:	.....	.....	.....	.....	.....	.....
Natural pigments	(h)	(h)	(h)	(h)	(h)	(h)
Zinc and lead pigments	140,636	26,972,137	(f)	e 27,000,000	.....	.....
Mineral waters	46,784,419	4,931,710	40,591,094	4,238,024	- 13.2	- 14.2
Natural gas .....	.....	142,089,834	.....	e 157,000,000	+ 10.5	+ 10.5
Natural-gas gasoline	217,884,104	40,188,956	(f)	e 73,840,000	.....	+ 88.7
Oilstones, etc.	1,816	188,704	1,010	189,038	- 806	- 14.4
Peat	97,363	709,900	107,261	1,047,243	+ 9,898	+ 12.1
Petroleum	335,315,601	522,695,213	e 350,131,000	e 690,190,000	+ 14.15,000	+ 10.2
Phosphate rock	2,584,287	7,771,084	2,490,760	8,214,463	+ 3.6	+ 32.1
Potash (K ₂ O)	32,573	13,980,577	54,562	21,487,300	+ 21,989	+ 5.7
Pumice	35,293	84,814	45,147	91,178	+ 7,456,723	+ 67.5
Pyrite	462,662	2,485,435	455,432	2,903,786	+ 9,854	+ 53.8
Salt	6,978,177	19,940,442	7,238,744	26,940,361	+ 7,230	+ 7.5
					+ 260,567	+ 16.8
						+ 35.1

a Excluded from metallic totals, as the value of the antimony contained in antimonial lead is included in the antimonial lead value and the remainder under last item ("unspecified").

b Not included in total value.

c Figures not yet available. Estimate of value included in total value of metallic products.

d In addition to the arsenious oxide (white arsenic), 3487 pounds of metallic arsenic, valued at \$2610, were produced in 1918. This value is included under last item ("unspecified").

e Estimated.

f Figures not yet available.

g Exclusive of considerable production for special uses, value for which is included under last item ("unspecified").

h Canvases discontinued after 1915. Value of iron ore sold for paint included under last item ("unspecified").

MINERAL PRODUCTS OF THE UNITED STATES IN 1917 AND 1918

Product.	1917			1918			Increase or decrease in 1918			Percentage of increase or decrease in 1918
	Quantity	Value		Quantity	Value		Quantity	Value	Quantity	Value
NON-METALLIC										
Sand:										
Glass.....	1,942,875	\$2,685,014	short tons..	2,172,887	\$4,209,728	+	230,212	+	11.9	+ 56.8
Molding, building, etc., and gravel.....	74,476,650	32,611,918	do.....	56,629,807	33,711,578	+	14,846,848	+	19.9	+ 3.4
Sand-line brick.....		1,420,380	do.....		838,929	—		—		— 37.8
Silica (quartz).....	142,878	818,069	short tons..	89,268	261,491	—	73,410	—	51.5	— 17.8
Slate.....		5,749,968	do.....		4,017,818	—		—		— 30.1
Stone.....		82,215,871	do.....		87,168,000	+		+		+12.9
Sulphur.....	1,120,378	23,987,000	long tons..	1,266,709	27,868,000	+	146,331	+	13.1	+ 16.2
Sulphuric acid (60° Baumé) from copper and zinc smelters.....	b 1,455,257	16,890,545	do.....	(c)	(c)		(c)	(c)	(c)	(c)
Talc and soapstone (exclusive of fibrous talc).....	144,177	1,411,416	short tons..	135,605	1,631,642	—	8,572	—	5.9	+ 15.6
Talc, fibrous.....	74,671	881,462	do.....	71,167	902,100	—	3,504	—	4.7	+ 2.3
Thorium minerals (monazite).....	(d)	(d)	pounds..				(d)	(d)	(d)	(d)
Total value of non-metallic products (approximate).....		\$2,915,326,000			\$3,366,323,000			+\$450,997,000		+15.5
SUMMARY										
Total value of metallic products.....										
Total value of non-metallic products (exclusive of mineral fuels).....		\$2,086,238,000			\$2,153,139,000			+\$66,906,000		+ 3.2
Total value of mineral fuels.....		677,489,000			648,812,000			— 28,677,000		— 4.2
Total estimated value of "unspecified" (metallic and non-metallic) products.....		2,287,837,000			2,722,511,000			+\$434,674,000		+ 19.0
Grand total approximate value of all mineral products.....		\$5,007,259,000			\$5,526,182,000			+\$518,923,000		+ 10.4

a Estimated.

b Includes 119,048 tons of stronger acid, reported as oleum, etc., not converted to 60° Baumé.

c Canvases discontinued after 1917.

d Value included under last item ("unspecified").

e Canvases of sulphuric acid from copper and zinc smelters discontinued after 1917. If the value of this acid were excluded from the 1917 totals, the increase in non-metallic products would be \$467,887,000 (16.1 per cent); the decrease in non-metallic products, other than mineral fuels, \$16,786,000 (2.5 per cent); and the increase in value of all mineral products, \$535,793,000 (10.7 per cent).

f Includes in 1918 products as follows: Antimony other than content of antimonial lead, valued at \$659,484, metallic arsenic (\$2610), bismuth, cadmium sulphide (\$70,315), chalc, chert, diatomaceous earth for special uses, cobalt concentrates, flint-lining for tube mills (\$46,634), ilmenite (\$11,100), iron ore sold for paint (\$22,924), lithium minerals (\$111,600), magnesium (\$615,217), marls, molybdenum (\$1,257,000), pebbles for grinding (\$82,851), selenium (\$200,000), silica sand and sandstone, finely ground (\$608,584), slate granules, sodium salts (carbonate, bicarbonate, and sulphate) from natural sources (\$992,788), strontium ore (\$20,000), tellurium, and an estimate of the value of miscellaneous mineral products, statistics for which are not collected annually by the Survey.

greatly in output. Gold was bound legally to a fixed price, while costs of production were soaring; the production of silver was hampered by a great increase in the imports of bullion, chiefly from Mexico, and by other causes. The most notable decrease was in building materials, the output of which declined 20 to 60 per cent, labor and capital being withdrawn from these industries and focused upon those that were more essential in the war economy. The approximate total value of the mineral production of the United States in 1918 is \$5,526,162,000, an amount more than \$500,000,000 in excess of that for 1917, \$2,000,000,000 in excess of that for 1916, and more than double that for any previous year. The increase as compared with 1917 was due to the advance in prices, whereas in total quantity of mineral products 1918 fell short of 1917.

See ALASKA.

ARIZONA. The output of gold, silver, copper, lead, and zinc from mines in Arizona in 1919, according to the estimate of the United States Geological Survey, Department of the Interior, had a total value of about \$108,707,000, a decrease of \$93,427,880. There was a decrease in both the quantity and value of all these metals, but the largest decrease was that in copper. During the first part of the year, there was a marked curtailment of output, and in the Verde district labor troubles closed the mines for nearly four months. During the last three months of the year many of the large companies again curtailed production as a result of market conditions. The mine output of silver decreased from 6,686,152 ounces in 1918 to about 4,927,000 ounces in 1919. In spite of the increase in the price of silver the value of the output decreased from \$6,686,152 to about \$5,479,800. The mine output of copper decreased from 764,855,874 pounds in 1918 to about 522,000,000 in 1919, a decrease of nearly 32 per cent. The value of the output decreased from \$188,919,401 in 1918 to about \$98,296,000 in 1919, and the average price of copper decreased from 24.7 cents to about 18.83 cents a pound. The mine production of lead in Arizona decreased from 12,503,689 pounds in 1918 to about 10,000,000 pounds in 1919. The value of the output decreased from \$887,762 to about \$575,000. The output of recoverable zinc decreased from 2,269,643 pounds in 1918 to about 1,717,000 pounds in 1919. The value decreased from \$206,538 to about \$125,700.

CALIFORNIA. The output of gold, silver, copper, lead, and zinc from metal mines in California in 1919 was valued at \$23,124,045, as compared with \$31,187,807 in 1918, according to preliminary figures of the United States Geological Survey, Department of the Interior. This was a decrease of \$8,063,762, or 26 per cent. The mine output of gold for the State in 1918 was \$16,528,953. The estimate for 1919 indicated a production of \$17,320,250, or about \$791,300 more than in 1918. The principal cause of the unusual reduction in the gold output of the State has been that steady, continuous operation of the properties seemed impossible, owing to war conditions, scarcity of competent men, high costs, and curtailment of freight and power. Some mines were worked only a few months, others were worked with only one shift instead of three, and still others have been compelled to cease work entirely for long periods. Moreover, few of the large companies were willing to push

production under the increased cost and to pay the resultant war income tax. The output of silver from California mines in 1919 was estimated at 1,121,069 fine ounces, valued at \$1,244,386 or 306,642 ounces less in quantity and \$193,325 less in value than in 1918. The silver produced in California is derived mainly from copper and lead ores, although some is obtained with the gold mined at placers and in deep gold mines.

The estimated mine output of copper in California in 1919 was 22,299,656 pounds, valued at \$4,236,934, as compared with 47,674,660 pounds, valued at \$11,775,641 in 1918, a decrease in quantity of 25,375,004 pounds and in value of \$7,538,707. Plumas is the largest copper producing county of the State, but Shasta, Calaveras, Siskiyou, and Trinity are also large producers, and small quantities are produced in most of the other metal-mining counties. The mine output of lead in California in 1918 was 13,372,049 pounds, valued at \$949,415, and the estimated output in 1919 was 4,455,161 pounds, valued at \$253,944, a reduction in quantity of 8,916,888 pounds and in value of \$695,471. The output of lead in California was 8,496,579 pounds less in 1918 than in 1917, and the figures for 1919 showed a decided and continued decrease. The lead is mined mainly in the southern counties of the State—Inyo and San Bernardino. The estimated output of zinc in the State in 1919 was 965,259 pounds, valued at \$68,533, as compared with 5,561,393 pounds, valued at \$506,087, in 1918, a decrease in quantity of 4,596,134 pounds and in value of \$437,554.

MINIMUM WAGE. The principle of the minimum wage, the aim of which is to regulate the amount of the wage directly by fixing the smallest sum which may legally be paid the worker, first found legislative expression in Australia in 1896. In 1909 Great Britain passed a minimum wage law known as the "trade boards act," applying to occupations paying "exceptionally low" wages, under which minimum wages had been fixed for some 400,000 workers representing eight industries up to the time of the War. This act was amended in 1918 so that it might be extended more quickly and to a larger number of industries. Within the past few years Norway and France passed minimum wage laws applying to sweated workers in the garment trades. All of these laws apply alike to both sexes. But in the United States minimum wage legislation has been confined to women and children, on the theory that these classes are in need of special protection. At the end of 1919, 14 States and Territories—Arkansas, Arizona, California, Colorado, Kansas, Massachusetts, Minnesota, North Dakota, Oregon, Porto Rico, Texas, Utah, Washington, Wisconsin—and the District of Columbia had provided minimum wage legislation for women and children workers; of these, two inaugurated the system for the first time during the current year, and one State, Nebraska, repealed its law on July 18th.

While the above summary shows that the minimum wage has gained scanty foothold throughout the world in actual legislation, it fails to give adequate expression to the importance of the movement; for the principle has been established in almost every industrial country where trade unions are prominent, through agreements in the different industries.

A number of States and the federal government increased the minimum rates of pay for various

classes of employees or provided for bonuses to meet the war-time increase in the cost of living. The States enacting such legislation were: Arkansas, California, Hawaii, Massachusetts, Montana, New Jersey, New York, Pennsylvania, South Carolina, and Wisconsin. The year's legislation bearing on genuine minimum wage laws follows:—

ARKANSAS. Telephone companies are exempted from the minimum wage law, but employers of three or less are no longer exempt.

MASSACHUSETTS. The minimum wage commission may require employers to keep, for not more than six months, a record of the hours worked by each employee. Failure is a misdemeanor. Penalty, \$5-\$50 for each offense. The minimum wage commission may require employers to post its notices for employees in such reasonable way and for such time as it may direct. Penalty, \$5-\$50 for each offense. The commission, as well as the State board of labor and industries, is given power to enforce these provisions. The minimum wage commission is given power to fill vacancies on wage boards.

MICHIGAN. It is made unlawful to pay women less than men for equal work; but no woman may be given a task disproportionate to her strength or be employed in any place detrimental to her morals, health, or potential powers of motherhood. Violation is made a misdemeanor. Maximum penalty, \$100, or imprisonment for three months, or both.

MONTANA. It is made unlawful to employ any woman in any occupation for wages or compensation less than that paid to men for equivalent service or for the same amount or class of labor in the same industry, office or place of employment. Violation is a misdemeanor. Penalty, \$25-\$500 for each offense.

NEBRASKA. The articles establishing the board of mediation and investigation, and the minimum wage commission are repealed July 18, 1919.

NORTH DAKOTA. All the usual powers of a minimum wage commission are given to the workmen's compensation bureau. It is declared unlawful to employ women and minors for unreasonably long hours, or under conditions detrimental to health and morals, or for wages which in the case of women are inadequate, and in the case of minors are unreasonably low. The bureau is given the powers necessary to investigate and ascertain wages, hours, and conditions of labor of women and minors and to establish standards. The bureau may submit its findings for further consideration and recommendation to a conference composed of three representatives each of employers, employees, and the public, and one or more commissioners. If the bureau approves of the recommendations of the conference it may, after public hearing, issue the orders necessary to carry them into effect. Questions of law may be appealed to the district and supreme courts, but on questions of fact the bureau's decision is final. Special licenses for employment at a lower wage may be issued to women who are physically defective and to apprentices. Violation is made a misdemeanor. Penalty \$25-\$100, or imprisonment for from 10 days to three months, or both. Penalty for discharging an employee who gives testimony, \$25-\$100. Women who are paid less than the minimum wage established may recover the difference with attorney's fees. The bureau must report to the legislature biennially. To

carry out the act \$6000 a year is appropriated.

PORTO RICO. It is made unlawful for employers in industrial or commercial occupations or public service undertakings to pay women after the first three weeks of apprenticeship less than \$4 a week if under 18, and less than \$6 a week if over 18. The act is to be enforced by the bureau of labor, and does not apply to agricultural pursuits.

TEXAS. An industrial welfare commission has been established, composed of the head of the bureau of labor statistics, as chairman, the representative of the employers on the industrial accident board, and the state superintendent of public instruction. The commission may employ a secretary and two investigators at a salary of not more than \$1800 and expenses. The commission is to investigate wages, hours, and conditions of labor where women and minors are employed. Provision is made for obtaining the necessary information, and for access to places of employment. Minors are defined as persons of either sex under 16. As so defined all minors and women are subject to the act except nurses, servants, farm laborers and students. This commission is to hold public hearings, after which it may determine a minimum wage and standard conditions for health and welfare of working women and minors. Such orders will go into effect 60 days after they are made by the commission, but not before Nov. 1, 1919, and copies must be posted in all places of employment affected. Orders may be rescinded or amended after public hearing. . . . Employees who are paid less than the minimum wage may recover the unpaid balance together with the costs of the suit regardless of agreement to work for less. To carry out the act \$5000 is appropriated.

UNITED STATES. A minimum wage board is established for the District of Columbia, selected by the commissioners of the district, and made up of one representative of the employers, one representative of employees, and a third person representing the public. The term of office is three years, one member's term expiring each year. They are allowed \$5000 for expenses, including \$2500 for the salary of a secretary. Employers must keep registers showing the hours and wages of their women employees. The board is given the necessary powers to compel production of testimony concerning wages, and to examine employers' payrolls. If investigation shows wages to be inadequate, the board is to call a conference of not more than three representatives each of employers and employees in that industry and of the public. After considering testimony, the conference is to make recommendations to the board as to wages for that industry. If the board approves the recommendations it shall issue an order with which all employers in the industry must comply. Violation is a misdemeanor. Penalty, \$25-\$100, or imprisonment of from 10 days to three months, or both. Discharging an employee who gives testimony is a misdemeanor. Penalty, \$25-\$100. Women who are paid less than the minimum wage may recover the difference with costs through a civil action.

CANADA. During the year, Quebec and Saskatchewan followed Manitoba in the establishment of boards for fixing wages of female employees. Alberta also, has limited statutory determination of wage rates in factories, shops,

and offices, while the Minimum Wage Act created a minimum wage board for British Columbia on Apr. 23d, 1918. The Quebec law, effective Mar. 17, 1919, establishes a commission with power to investigate women's wages, and to call conferences of employers and employees to fix a minimum wage for any industry where wages are inadequate. The Saskatchewan law, effective May 1st, provides for the appointment of a board by the Lieutenant-Governor; this board is to consist of five members, two of whom are women, and has the power to fix wages without calling a conference. During the current year, important awards were made by the minimum wage boards in British Columbia and Saskatchewan, and minimums were set for the industries in which most female labor is employed.

GREAT BRITAIN. Numerous wage agreements have been reached in Great Britain in the past year, and in addition minimum wage orders have been issued for several new industries under the British Trade Boards Act. Among these agreements one of the most important affects about 65,000 men employed in various capacities on the British railroads; wages have been increased and new minimums set by various arbitration boards in the laundry, wholesale clothing, and shirt and collar trades; the 44-hour week and new minimums were established in the Nottingham building trades; the wage minimum has been increased for agricultural workers in the Perth and Forfar districts in Scotland, and for mechanics in the linen industry in Ireland; the court of arbitration at Westminster (London), recently handed down a decision which sets the wage standard for the shipbuilding and engineering trades throughout the United Kingdom.

GERMANY. According to *Sociale Praxis und Archiv für Volkswohlfahrt*, Berlin, Apr. 24, 1919, a Prussian Wages Department is to be formed to function under the general supervision of the German Wages Department. The November *Monthly Labor Review* translates a paragraph outlining the purpose of the proposed Board:

"In order to insure the possibility of competition by German manufacturers in foreign markets after the conclusion of peace, it is necessary to scrutinize carefully and without delay the efforts made to obtain progressive increments of wages, and to deal with such efforts in a rational manner. Consequently the functions of the Prussian Wages Department will be as follows: Intervention in wages disputes; investigation of the necessity of the demands put forward and of the explanations of employers; elucidation of the interdependence of economic life and of preliminary arrangements for a general and proportionate decrease in wages. On the other hand, consideration will be given to a control of the prices of the most important foodstuffs and of other articles necessary for existence, as soon as circumstances make such control feasible, in order to check extortion."

MINNESOTA. POPULATION. The population of the State in 1910 was 2,075,708, and on July 1, 1919, it was estimated to be 2,378,128, a gain during the twelvemonth of about 33,000.

AGRICULTURE. The following table is compiled from a report of the Federal Department of Agriculture, for December, 1919.

Crop	Year	Acreage	Prod. Bu.	Value
Corn	1919	2,950,000	118,000,000	\$141,600,000
	1918	2,780,000	111,200,000	123,432,000
Oats	1919	3,220,000	90,180,000	57,702,000
	1918	3,282,000	134,562,000	84,774,000
Barley	1919	910,000	18,200,000	21,112,000
	1918	1,300,000	40,300,000	32,240,000
Wheat	1919	4,015,000	37,710,000	94,276,000
	1918	3,619,000	75,792,000	154,616,000
Rye	1919	522,000	7,830,000	10,179,000
	1918	435,000	8,700,000	13,050,000
Hay	1919	2,000,000	a 8,800,000	55,100,000
	1918	1,950,000	a 2,730,000	38,493,000
Potatoes	1919	300,000	26,100,000	39,938,000
	1918	312,000	32,760,000	24,570,000

a Tons.

EDUCATION. The reports of the Inspectors of High and Grade Schools for the year ending July 31, 1919, yield the following figures. In 1919 there were 236 high schools, with an enrollment of 45,457 and an average daily attendance of 37,422. There were 1827 high school instructors, who received a total of \$2,142,373 in 1918-19. Enrolled under the high schools there were 179,637 graded pupils, with an average daily attendance of 149,913 and 5260 teachers, receiving a total salary of \$4,639,665. The grand total of salaries in the State high school system was \$8,561,416, while the total State aid was \$1,014,482. There were also 260 graded schools, with 1599 teachers, a total enrollment of 40,038 and an average attendance of 30,024. The average salary of grade teachers was in 1918-19, \$594, while the principals received \$1215.

FINANCE. The balance in the treasury on Aug. 1, 1918 was \$8,153,000, and on June 30, 1919 it was \$6,986,513. The total revenue for this period was \$32,493,164, while the total disbursements were \$32,493,164. The State has no bonded debt.

TRANSPORTATION. The total mileage in the State in 1919 was about 9060. The longest line were the Great Northern, the Chicago, Milwaukee & St. Paul, and the Minnesota, St. Paul, and Sault Ste. Marie.

CHARITIES AND CORRECTIONS. Minnesota was among the first of the States to adopt a system of centralized control of its State institutions; the State Board of Control now has complete financial and general control over 13 institutions, and various powers over several others. The following list gives name, situation, date of establishment, number on staff and population of the institutions: St. Peter State Hospital; St. Peter; 1866; 225; 1242. State Hospital; Rochester; 1874; 210; 1284. State Hospital; Fergus Falls; 1885; 250; 1558. State Asylum; Anoka; 1900; 85; 887. State Asylum; Hastings; 1899; 80. School for Feeble-Minded and Epileptic Colony; Faribault; 1882; 260; 1543. School for the Deaf; Faribault; 1863; 80; 250. School for the Blind; Faribault; 1866; 42; 80. State Prison; Stillwater; 190. State Reformatory; St. Cloud; 1889; 70; 615. Training School for Boys; Red Wing; 58; 220. Home School for Girls; Sauk Centre. Hospital for Crippled and Deformed Children; St. Paul; 1910; 40; 123. Public School for Dependent Children; Owatonna; 1885; 74; 319. According to the State Legislative Manual for 1919, the State Prison is "the greatest revenue producing public institution in the world." Since 1890, over \$20,000,000 worth of binding twine has been here manufactured and sold. The machinery department has turned out nearly \$1,500,000

of mowers, binders, and other farm machinery.

OFFICERS. Governor, J. A. A. Burnquist; Lieutenant-Governor, Thomas Frankson; Secretary of State, Julius A. Schmahl; Auditor, J. A. O. Preus; Treasurer, Henry Rines; Adjutant-General, W. F. Rhinow; Attorney-General, C. L. Hilton; Commissioner of Insurance, J. B. Sanborn; Superintendent of Education, J. M. McConnell; Commissioner of Labor and Industries, J. P. Gardiner.

JUDICIARY. Supreme Court: Chief Justice, Calvin L. Brown; Associate Justices, Homer B. Dibell, Andrew Holt, Oscar Hallam, James H. Quinn; Clerk, Herman Mueller. See OLD AGE PENSIONS.

MINNESOTA, UNIVERSITY OF. A co-educational State institution at Minneapolis, Minn. The enrollment for the summer session of 1919 was 1510, while that for the fall was 7451; of these 5062 were men and 2389 women. The total number of members in the faculty in the fall was 976, of these 255 were new; the number in the faculty with the rank of instructor or above was 775, and of these 131 were new in 1919. The income for the year was \$4,337,094. The library contains 280,000 volumes. In 1919 there were several changes in instruction: the most noteworthy being the change from the semester to the quarter system, the establishment of a new School of Business, a new course in Americanization Training Work, Training for Diplomatic and Consular Service, for State and Federal Administration, for Municipal Administration and Engineering, and for teachers and supervisors of Physical Education. The course in the College of Dentistry was changed from four to five years, the additional year being pre-dental work in the College of Science, Literature, and the Arts. In the 1919 session of the State Legislature, a 10-year building programme was made possible by an annual appropriation of \$560,000 for 10 years, beginning July 1, 1920. The University was founded in 1868. In December, 1919, announcement was made of the resignation of President Marion LeRoy Burton, to take effect in July, 1920, when President Burton accepts the presidency of the University of Michigan. In 1919 the university received a bequest under the will of W. J. Murphy, owner of the *Minneapolis Tribune* for the purpose of establishing a School of Journalism. The university was named residuary legatee by the late Dr. James E. Moore, long a member of the Medical School, such legacy to be used for that school.

MISSISSIPPI. POPULATION. The population of the State in 1910 was 1,797,114, and on July 1, 1919, it was estimated to be 2,026,361, a gain during the twelvemonth of about 25,000.

AGRICULTURE. The following table is compiled from a report of the Federal Department of Agriculture.

Crop	Year	Acreage	Prod. Bu.	Value
Corn	1919	3,980,000	59,700,000	\$95,520,000
	1918	3,900,000	66,800,000	100,113,000
Oats	1919	278,000	5,282,000	5,546,000
	1918	322,000	6,440,000	6,891,000
Hay	1919	405,000	a 648,000	13,284,000
	1918	347,000	a 416,000	7,696,000
Potatoes	1919	18,000	1,530,000	2,880,000
	1918	20,000	1,600,000	2,640,000
Sweet potatoes	1919	98,000	10,290,000	11,525,000
	1918	89,000	8,455,000	8,793,000
Cotton	1919	2,950,000	b 946,000	177,375,000
	1918	3,138,000	b 1,226,000	170,421,000

a Tons. b Bales.

TRANSPORTATION. The railway mileage of the State in 1919 was 4480; of this 62.5 miles of first track were built in the year.

OFFICERS. Governor, Theo. G. Bilbo; Lieutenant-Governor, Lee M. Russell; Secretary of State, Joseph W. Power; Treasurer, J. P. Taylor; Auditor, Robert F. Wilson; Attorney-General, Ross A. Collins.

MISSISSIPPI, UNIVERSITY OF. A co-educational State institution, located at Oxford, Miss., (post office, University, Miss.). The enrollment for the fall of 1919 was 607, and there were 34 members in the faculty, exclusive of instructors and assistants. The endowment fund is approximately \$700,000, held by the State, which pays the university 6 per cent interest. During 1919 a new department of hygiene was added. The library contains 31,000 volumes. The university was founded in 1844. Chancellor, Joseph Neely Powers, LL.D.

MISSOURI. POPULATION. The population of the State in 1910 was 3,294,335, and on July 1, 1919, it was estimated to be 3,467,401, a gain of 19,000 during the twelvemonth.

AGRICULTURE. The following table is compiled from a report of the Federal Department of Agriculture.

Crop	Year	Acreage	Prod. Bu.	Value
Corn	1919	5,756,000	155,412,000	\$214,469,000
	1918	6,698,000	133,860,000	191,420,000
Oats	1919	1,417,000	38,259,000	27,164,000
	1918	1,524,000	44,196,000	30,937,000
Wheat	1919	4,296,000	57,886,000	120,982,000
	1918	8,092,000	53,154,000	108,966,000
Hay	1919	2,810,000	a 8,794,000	78,983,000
	1918	2,989,000	a 2,690,000	55,145,000
Potatoes	1919	110,000	8,250,000	15,180,000
	1918	114,000	6,954,000	10,640,000
Cotton	1919	111,000	b 60,000	10,200,000
	1918	148,000	b 62,000	8,892,000

a Tons. b Bales.

EDUCATION. As the result of agitation in the summer of 1917 the office of the Superintendent of Public Schools conducted in 1917 and 1918 a detailed investigation of the educational system of the State, from which a very interesting report was presented to the State government in 1918. This report gives Missouri a rank of 32d among the States in 1916. This means that Missouri has been progressing less rapidly than the nation as a whole, for in 1910 Missouri ranked 28th. Upon the basis of this report the Superintendent made several recommendations for revision of the School Code. For the year ending June 30, 1918, the total expenditure was \$22,815,610 and the total receipts amounted to \$28,593,554. The average levy in the State for school purposes was \$0.655. School property was valued at \$137,349,927. Elaborate arrangements have been made relative to the administration by the State of the provisions of the Federal Smith-Hughes Act, which was accepted by Missouri in March, 1917.

FINANCE. The balance on hand Jan. 1, 1919 was \$3,963,412, and on Dec. 31, 1919 it was \$5,791,823. The receipts for this period were \$25,062,337 and the disbursements amounted to \$23,233,925. The amount of the State debt on Dec. 31, 1919 was \$6,498,839.

TRANSPORTATION. The railway mileage of the State for 1919 was about 9382. The longest roads were the St. Louis & San Francisco, and the Chicago, Burlington & Quincy.

OFFICERS. Governor, F. D. Gardner; Lieutenant-Governor, Wallace Crossley; Secretary of State, John L. Sullivan; Treasurer, G. H. Middekamp; Auditor, G. E. Hackmann; Attorney-General, F. M. McAllister. See **WORKMEN'S COMPENSATION**.

MISU, NICHOLAS. Rumanian representative at the Paris Peace Conference. He was regarded as the most able of the Rumanian diplomats, having a wide experience and being familiar with a large number of European and Balkan languages. He was by birth a Macedonian. He served as minister to Bulgaria, Austria, and England.

MOISEIWITSCH, BENNO. See **MUSIC, Artists, Instrumentalists**.

MOLDAVIA. The northern division of Rumania. Area estimated before the war at 14,759 square miles; population (1913), 2,145,464. Chief towns with their population before the war: Jassy, 76,120; Galatz, 72,512; Botushani, 32,874; Barlad, 25,367; Foc Sani, 25,287.

MOLYBDENUM. See **CHEMISTRY, INDUSTRIAL**.

MONACO. A principality on the Mediterranean surrounded by the territory of France except at the coast, celebrated for the gambling resort, Monte Carlo. Area, 8 square miles. Population of La Condamina, 11,082; Monte Carlo, 9627; Monaco, 2247.

MONEY. TOTAL STOCK. The total stock of money in the United States on Oct. 1, 1919, was \$7,662,898,238, an increase of almost \$250,000,000 since that time last year, and \$2,020,000,000 more than on Oct. 1, 1917. The total for 1919 included \$616,213,318 held in the United States Treasury as assets of the government and \$2,087,709,369 held by and for the federal reserve banks and agents. Of this total amount of money held either by the government or the federal reserve banks \$2,273,565,233 is in gold and silver coin and bullion. The total money in circulation was \$4,958,975,551 including \$468,778,150 of gold and silver certificates and treasury notes of 1890 offset by either gold coin or bullion in the total monetary stock. In circulation was \$397,076,567 of gold making the total gold holdings of the country \$2,905,726,555. Gold was thus 37.9 per cent of the total stock of money as compared with 45.6 per cent one year earlier, and 55.8 per cent on June 30, 1917. The total stock of metallic money included \$308,145,759 of standard silver dollars and \$243,380,383 in subsidiary silver. The total stock of notes was \$4,185,645,541 divided as follows: United States notes, \$346,681,016; federal reserve notes, \$2,866,288,513; federal reserve bank notes \$251,190,800; national bank notes \$721,485,210. This shows an increase in the amount of federal reserve notes of \$1,018,708,545 since July 1, 1918, and at the same time in 1917 there were only \$547,408,000 outstanding.

CIRCULATION. The money in circulation included besides the gold above mentioned \$81,784,880 in silver dollars and \$230,766,444 in subsidiary silver. In addition there were in circulation nearly all of the above mentioned notes, the total of notes in circulation being \$3,780,570,510 as compared to \$4,185,645,541 of notes issued. The remainder of the money in circulation was the gold and silver certificates and treasury notes above mentioned of which \$313,250,681 was in gold certificates and \$153,809,165 in silver certificates. These figures accentuate

the prominent position that the federal reserve notes are assuming in this country's circulating money, in as much as there is a reduction of \$505,102,319 in gold certificates and \$225,401,835 in silver certificates since June 30, 1918 and an increase of \$958,222,785 in federal reserve notes. The percentage of gold coin and certificates in the total circulation has dropped from 50.97 in 1917 to 35.92 for 1918, to 14.82 for 1919. The per capita circulation on Oct. 1, 1919, was \$46.61, almost the same as that of the previous year which was \$46.34, while that of 1917 was \$37.97.

PAPER MONEY. The total paper money outstanding Oct. 1, 1919, was \$5,018,756,212, including both certificates and notes, from which however is to be deducted the amounts held in the treasury and the federal reserve banks and federal reserve agents bringing the net total down to \$4,249,248,660. The grand total of paper money outstanding included besides the federal reserve notes and United States notes and national bank notes mentioned in the preceding paragraphs, \$673,301,781 of gold certificates (including \$5,281,421 held in the reserve banks) and \$159,090,586 of silver certificates (including \$5,281,421 held in the reserve banks). The cost of issue and redemption for each \$4000 notes or pieces of paper currency was \$61.04 and the aggregate cost was \$5,412,000 of which nearly seven-eighths was caused by the expenses of issue and the remainder by redemption. The average length of life of paper money is approximately 2.5 years. The stock of standard silver dollars aggregated \$308,145,759. The total amount of subsidiary silver coin was \$12,613,939 not in circulation.

MONGOLIA. A large territory dependent on China, with incompletely defined limits, lying to the west of Manchuria. Area, about 1,367,000 square miles; population, about 2,600,000. Since 1912 it had been placed by treaty under the protection of Russia. After the overthrow of the Czar and the rise of Bolshevism the treaty was ineffective. On November 20th the Mongolian government at Urga called this fact to the attention of the Chinese government and expressed the hope that the Mongolian people might retain their rights and privileges so that they could attach themselves to the republic of China. On November 23d the Chinese government declared that the agreement with the former Russian government in respect to Mongolia would no longer be in force and that it accepted the Mongolian proposal.

MONIZ, EGAS. Portuguese representative at the Paris Peace Conference. He was Portuguese Minister for Foreign Affairs. He was by profession a physician but entered politics at an early age, and was a friend of Sidonio Paes, the former President. Though portfolios in several governments were offered him, he did not accept a ministry until 1918, when he became Minister of Foreign Affairs under the late Paes. Before that he had represented his country at Madrid.

MONTAGU, EDWIN SAMUEL. Representative of British India at the Paris Peace Conference. For two years he had been prominent in connection with the proposed scheme of Indian reforms. He was appointed under-secretary for India in 1910 and entered the cabinet in 1915, where in the first coalition government he was Minister of Munitions. He retired with the Asquith group and later was chosen secretary

for India (1917). He spoke on behalf of the reform programme in August, 1917, and was later sent to India to investigate political conditions. The result was the important report on Indian Constitutional Reforms, which was issued in July, 1918, (see preceding YEAR BOOK). Investigations along the same lines were still in progress in 1919.

MONTANA. POPULATION. The population of the State in 1910 was 376,053, and on July 1, 1919, it was estimated to be 499,816, a gain during the twelvemonth of 13,000.

AGRICULTURE. The following is compiled from an annual report of the Federal Department of Agriculture, for December, 1919.

Crop	Year	Acreage	Prod. Bu.	Value
Corn	1919	128,000	1,728,000	\$2,851,000
	1918	100,000	2,100,000	2,835,000
Oats	1919	612,000	6,120,000	5,569,000
	1918	680,000	20,400,000	16,320,000
Wheat	1919	2,221,000	10,729,000	25,214,000
	1918	2,386,000	29,961,000	58,124,000
Hay	1919	752,000	8,827,000	19,021,000
	1918	767,000	21,227,000	24,049,000

a Tons.

EDUCATION. The total school population as of September, 1918, was 158,674. The enrollment was 122,000. The average daily attendance for a school year of 148 days was 87,666. There were 616 male teachers and 4978 female teachers. The average salary for 1918-19 for village and elementary schools is \$91.25; high school teachers receive on an average of \$114 per month. The Superintendent of Public Instruction, in the report for the biennium ending 1918, gives a very interesting table showing the percentage by counties of teachers receiving less than \$700 annually, a figure taken as a minimum living wage. This chart shows that in some counties the percentage is as high as 90 per cent, while the average for the counties is 44 per cent. The cost of schools in 1917-18 was \$1.54 per \$100 of wealth in the State. The State apportionment for educational purposes is only 12.8 per cent of the total.

TRANSPORTATION. According to the report of the State Railroad Commission for the biennium ending 1918, there were 4913 miles of main line, 205 miles of double track main line, and 1594 miles of branches, etc. The total mileage operated was 6987. The longest roads were the Chicago, Milwaukee & St. Paul, the Great Northern, and the Northern Pacific. In the year ending June 30, 1918, there originated at Montana stations a total of 348,119 carloads of commodities; 99,663 of these contained ore.

OFFICERS. Governor, Samuel V. Stewart; Lieutenant-Governor, W. W. McDowell; Secretary of State, Charles T. Stewart; Attorney-General, Samuel C. Ford; Adjutant-General, Phil Greenan; Treasurer, H. L. Hart; Auditor, George P. Porter; Superintendent of Public Instruction, May Trumper.

JUDICIARY. Supreme Court: Chief Justice, Theodore Brantly; Associate Justices, W. L. Holloway, Chas. H. Cooper, John S. Hurley, J. A. Matthews; Clerk, J. T. Carroll.

SEE MINIMUM WAGE.

MONTANA, UNIVERSITY OF. Co-educational university at Missoula, Mont. The enrollment for the summer session of 1919 was 389, in the fall, 796. The faculty numbers 64. The income from the State for the year was \$280,000, \$60,000

being appropriated for buildings. A new natural science building, at a cost of \$100,000, was constructed during the year. The library contains 45,000 bound volumes and 19,600 pamphlets. The university was founded in 1895. President, Edward O. Sisson, Ph.D.

MONTENEGRO. A Balkan state bounded on the east by Serbia, on the south by Albania, on the west by Dalmatia and on the west and north by the Herzegovina; an independent constitutional monarchy until the occupation by the Germans and Austrians at the close of 1915; after Dec. 1, 1918 a part of the newly formed Jugo-Slav state, or unitary kingdom of Serbians, Croats and Slovenes. Area before the Balkan wars, 3474 square miles; area, after the Balkan wars, 5603 square miles; population, estimated Jan. 1, 1917, 436,789. Capital, Cetinje, with an estimated population of 55,000. Other towns with estimated populations are: Podgoritz, 14,000; Dulcigno, 5000. The Montenegrins belong to a Serbian branch of the Slavic race. Agriculture is the main pursuit but the methods are primitive. The chief crops are corn, oats, tobacco, potatoes, barley and buckwheat; and wine is produced in certain areas. Nicholas I (born 1841) was king until Nov. 25, 1918, when the National Assembly at Podgoritz voted in favor of his deposition. He removed with his cabinet to France. On November 26th, the Assembly voted for the union of Montenegro with the new state of Jugo-Slavia. The final settlement was subject to the Peace Conference. See WAR OF THE NATIONS AND JUGO-SLAVIA.

MONTEUX, PIERRE. See MUSIC, *Orchestras*.
MONTSEERAT. A presidency of the Leeward Islands (q.v.).

MOON, REUBEN OSBORNE. Former congressman from Pennsylvania, died at Philadelphia, Pa., October 26. He was born in Burlington County, N. J., 1847, graduated at Philadelphia College in 1875, and was admitted to the bar in 1884, after which he was in practice at Philadelphia. He was a member of Congress from 1903-13, and served as chairman of the joint committee on codifying the federal statutes. He was a Republican in politics.

MORA, FLORA. See MUSIC, *Artists, Instrumentalists*.

MORAVIA. Before the downfall of the Austro-Hungarian Monarchy, a crownland of Austria, bounded by Lower Austria, Silesia, and Hungary; included toward the end of 1918 in the new state of Czecho-Slovakia (q.v.). Area placed before the war at 8584 square miles; population estimated in 1913 at 2,666,613. According to the census of 1910, 1,868,971 or 71.75 per cent, spoke Bohemian. Capital, Brunn, with a population in 1910 of 126,737.

MORAVIANS. There are three branches of this denomination which was founded in Georgia in 1735 by Bohemian and Moravian immigrants, Moravian Church (Unitas Fratrum), Bohemian and Moravian Brethren (Evangelical Union), and Independent Moravian Churches of which there are three. The largest of these branches is the Unitas Fratrum which had, in 1919, 21,984 communicants, 1581 non-communicants, with 155 ministers and about 140 churches. This shows a slight increase over 1918. Sunday school pupils numbered 7722, a slight decrease from 1918. Missionary work is carried on in 20 fields, where to January, 1919, there were 108,580 converts. There are seven

educational institutions, the principal one being the Moravian College and Theological Seminary at Bethlehem, Pa.

The Evangelical Union of Bohemian and Moravian Brethren had about 1000 communicants with 21 churches and 4 ordained ministers. Independent Moravian Churches had about 400 communicants in the three churches.

MOROCCO. The largest of the Barbary states, is a sultanate in Africa, mainly under French protection. It is situated in the north-western part of Africa, lying between 27° and 36° north latitude, and 1° and 11° 40' west longitude. It comprises the kingdom of Fez and Morocco, north of the Atlas, and the territories of Sna, Dra, Wadi Tafillet, Tuat, and others to the south, which are further subdivided into 33 districts, each supervised by a "kaid." The chiefs of the semi-independent tribes rule their tribes, scarcely admitting the rule of the Sultan. The protectorate includes an area of 416,800 square kilometers, with a population of not quite 6,000,000, estimated by the French Service des Renseignements (November, 1911). The Spanish concessions occupy about 21,800 square kilometers, with over 404,000 population. Tangier, one of the principal seaports, has 600 square kilometers and a population of at least 60,000. The present seat of government is at Rabat.

It is estimated that there are about 50,000 Christians in Morocco, of which number about 11,000 live in Tangier, and another 20,000 in Casa Blanca.

As regards schools, on Jan. 1, 1918, there were 191 educational establishments open to the public, 668 teachers being employed to instruct 21,520 pupils, of whom 16,706 were in the primary grades, 1689 in the secondary grades, 329 scholars enrolled for superior instruction, 654 following professional courses, and 2142 attending evening classes.

The population belongs chiefly to the Malekite sect of the Sunnite Mohammedans, and are classified for the most part as Berbers, Bedouins, Meud-Arabs, and Tuaregs.

The principal products of the country include cattle, eggs, barley, beeswax, corn, wheat, hides, skins (sheep and goat), seeds, beans, peas, and wool. Hog raising is one of the principal new industries, the total value of the hogs shipped to Europe in 1918 being nearly \$300,000. In addition, 662 metric tons of salt pork were sold to France, for nearly \$500,000. Among the fruits produced may be mentioned figs, almonds, pomegranates, lemons, olives, oranges, and dates. Cotton growing was introduced in Morocco in 1911. Agriculture is in a somewhat primitive state at present, although the soil is capable of extensive cultivation. The lack of security to foreigners in the interior of the country plays an important part in the development of the country's industries. Fishing is a thriving industry, as sardines and tunny-fish are plentiful. There are supposed to be extensive mineral deposits, of which the most important are copper, tin, and lead. Mining by individuals or on behalf of private interests, however, continued in abeyance throughout 1918, and further mining operations must remain at a standstill until the International Arbitral Commission, appointed in 1914, decides the status of the various denouncements that have been filed from time to time by those who carried out prospecting opera-

tions prior to the proposed promulgation of the Moroccan Mining Code in 1914.

The most important ports of Morocco are Tetuan, Tangier, El Araish, Rabat, Casa Blanca, Mazagan, Saffi, and Mogador.

The public debt of the French protectorate totals \$78,200,000, including the French loans of 1904, 1910, and 1914, amounting respectively to \$12,000,000, \$19,500,000, and \$32,800,000. Public confidence in Morocco's economic future and financial stability under French control is evidenced by the fact that the 5 per cent 500-franc bonds issued in 1918 at 445 francs were in 1919 quoted on the Paris Bourse at par.

The estimated income of the French protectorate in 1918 was \$17,000,000, as against an estimated expenditure in that year of \$16,800,000. Of this income, \$3,700,000 was received from the tax on agricultural revenue, based on the annual harvest, the fruit trees, and live stock. The chief income continues to be derived from customs duties on imports and exports, such revenue totaling more than \$5,000,000 in 1918.

The total value of the imports and exports of Morocco in 1917 and 1918 are as follows:

	<i>Imports</i>	<i>Exports</i>
1917	\$62,313,014	\$24,048,991
1918	73,706,992	24,654,973

The increased value of imports in 1918 is due chiefly to the higher prices. The value of the principal imports and exports in 1918 is as follows:

<i>Imports</i>	<i>Exports</i>
Flour \$1,508,055	Breadstuffs \$2,546,042
Coal 1,167,711	Eggs 4,466,098
Cotton goods... 15,665,783	Fruits and nuts. 1,588,631
Silk goods.... 1,287,059	Hides and skins 2,003,392
Soap 1,200,170	Seeds 2,809,955
Sugar 10,378,930	Vegetables 2,044,437
Tea 8,958,450	
Tobacco 1,383,241	
Wine 2,547,823	
Lumber 1,016,883	
Woolen goods.. 1,081,900	

The French government has spent large sums in recent years on the development of roads in Morocco. At present there are 1287 miles of first-class roads in the protectorate, and 353 miles of secondary roads, over which the products of the rich interior regions are carried to the coast towns, which serve as natural outlets. As both labor and raw materials are readily available, important progress has been achieved in road making in French Morocco. The amount provided for road construction out of the loan of 1914 was about \$7,000,000, later raised to nearly \$14,000,000 by the complementary loan of 1916. Traffic on the Moroccan highways is very large. In addition to the transport of passengers by private or public automobiles, the roads permit an important movement of merchandise by motor truck, carts, camel caravans, mules, etc. Since the establishment of railroads, certain currents of traffic by caravan have materially diminished, and in certain cases almost completely disappeared, while on the other hand, the steady pacification of the country opens up new regions to commerce and develops new movements of produce.

An international convention stipulated that the first commercial railroad to be constructed in Morocco should connect Tangier to Fez, but

the construction of strategic railways was not prohibited. France has thus been able to cover her Moroccan protectorate with a network of military railroads, now 532 miles long, commencing at Oudjda, on the Algerian border, and running east to Taza. The western system is 386 miles long, divided into a northern and a southern section, the former starting at the twin ports of Rabat-Sallee and ending at Fez, after passing by Kenitra, Dar-Bel-Hamri, and Mequinez. Commercial traffic of 1917 on the 386 miles of the western system amounted to 43,424 tons of merchandise, and 205,699 civilian passengers transported. The construction of a connecting line from Taza to Fez is being pushed forward, with a view to linking the eastern and western systems. In addition, standard-gauge railroads are projected from Marrakesh north to Casa Blanca, and along the coast to Rabat and Kenitra, then northwest to connect the Tangier-Fez Railroad at El-Arb du Gharb and at Petit-jean.

POSTS, TELEGRAPHS, AND TELEPHONES. In 1917 over 5,000,000 letters were mailed from the French zone and about the same number were received, about one-half of this correspondence being with France. About \$6,000,000 was transferred from Morocco to France by postal order in 1917, and \$2,000,000 from France to Morocco. Domestic transfers of money by this means amounted to \$5,000,000.

There were 2777 miles of telegraph lines in French Morocco, of which 1313 miles were available for the transmission of commercial messages. There were also three wireless stations. Over the telephone system of the protectorate passed 1,372,673 communications in 1917. Telephone exchanges were in operation in the towns of Casablanca, Rabat, Fez, Mequinez, Marrakesh, Fedala, Kenitra, and Sallee. Inter-urban lines between these towns constitute a complete telephone system in western Morocco.

The Sultan in 1919 was Mulai Yussuf, the 17th of the dynasty of the Alides. He was proclaimed at Fez, Aug. 17, 1912, taking the place of his brother, Mulai Abd-el Hafid, who abdicated. The Government of Morocco is an absolute monarchy, and the Sultan is unrestricted by any laws, civil or religious. Since the establishment of the French protectorate, however, the Sultan is obliged to follow the advice of the French resident-general in all matters. The French resident-general in 1919 was General Lyautey, who held office from April 28, 1912, to Dec. 13, 1916, and who was reappointed April 7, 1917. The Spanish high commissioner was Gen. Damaso Berenguer, appointed Jan. 25, 1919.

HISTORY

RECENT PROGRESS. The following brief synopsis of recent changes in Morocco under French administration is reduced from accounts in the French press. Means of communication though still unsatisfactory had greatly improved in recent years. For example, the port of Casablanca had been practically opened though this was at first thought impossible. During the war 4000 workmen were constantly employed on it and the dyke was carried to a length of 700 meters. The port could be used except during about 15 days of the year. As to the European population, while in 1907 there were only 300 Europeans in the country and in 1912 3000, they were

placed in 1919 at about 65,000; European quarters well built and sanitary had sprung up in the neighborhood of many of the cities. In 1900 the traveler, it was said, could completely traverse all the good roads of the country in the course of a few hours. In 1919 there were 1000 kilometers of good roads and 1000 more in the process of construction along with a large number of trails and military routes which were of great service. In 1911 trade was placed at 139,000,000 francs and in 1916 at 310,000,000 francs. In this the share of France increased from 46.13 per cent to 70.67 per cent. The budget previous to 1914 showed a deficit, but in that year there was an excess of 12,000,000 francs; in 1915 an excess of 25,000,000; and still more in 1916. It was estimated that 30 per cent of the 75,000,000 francs of the budget covered the expenses of sovereignty and that all the rest was productive. Education also had made considerable progress. The number of schools in 1912 numbered 37 with 61 teachers and 3000 pupils; and on June 30, 1917, there were 180 schools with 625 teachers and over 20,000 pupils. The number was reported to have increased since then. Still greater progress had been made in the means of sanitation and everywhere hospitals had sprung up and improved methods been introduced with the result that epidemics and plagues were largely diminished. After 1914 there was no smallpox or typhus.

MILITARY OPERATIONS. The revolt of the Taflet tribesmen in Morocco which broke out in January was soon put down.

A FRENCH REVERSE. It was reported that on March 31st two companies of Moroccan native troops had been attacked by rebels near the border of the Spanish zone and were greatly outnumbered with the result that they were almost completely destroyed. A certain number of them effected their escape and succeeded in defending themselves after reaching Mediouna, where fresh troops soon came to relieve them. See *EXPLOSION, Africa*.

MOTHERS' PENSIONS. See *SOCIAL INSURANCE*.

MOTOR FUELS. See *CHEMISTRY, INDUSTRIAL*.

MOUNT HOLYOKE COLLEGE. A non-sectarian institution for the education of women, founded as a seminary by Mary Lyon, and chartered as a college in 1888, situated at South Hadley, Mass. In the fall of 1919 the enrollment was 815; and there were 133 members of the faculty. Productive funds amount to \$1,425,640 and the income for the year was \$70,028. The library contains 72,352 bound volumes and pamphlets. The college has recently started a campaign to increase its endowment, \$3,000,000. President, Mary Emma Woolley, Litt.D., L.H.D., LL.D.

MOUNT WILSON OBSERVATORY. See *ARCHITECTURE*.

MOVING PICTURES. The year's progress in the field of moving pictures was substantial, from a business point of view. Considered as an industry, the scenarios offered and produced attained an ever widening popularity and measure of financial success. In spite of generally higher prices of admission to the theatres the measure of popularity reached by photoplay productions was greater than ever before. Post-war conditions had, it is true, an effect in lessening the construction of new theatres and clos-

ing some small picture houses here and there; but this result, as a whole was beneficial to the industry in general.

There were no new features characterizing the films shown during the year. A tendency to emphasize and amplify the weekly news services that had enjoyed such popularity in previous years was more than ever noticeable during 1919. The usual themes continued to interest the public, just as formerly, and while there were many plays of outstanding merit presented, yet programmes were almost universally interspersed with the well-worn cowboy theme and comedies of only ordinary merit. Artistically, in the treatment of themes, it may be stated that there was no advance accomplished, but it was encouraging to note in many localities, an awakened sense of discrimination and appreciation of really good plays on the part of the public, if one may judge from the opinions of newspaper critics and from the spoken opinions heard in any typical crowd after watching an exhibition of films in first-class theatres. The entertainment in such places was enhanced in attractiveness by interspersing excellent orchestral or other musical specialties in addition to the music incidental to a proper presentation of the photoplay itself.

As mentioned in preceding issues of the YEAR BOOK, the question of censorship continued to be an open one. Some states maintained their board of censors, others took no action to create one, while a third group appeared to be awaiting the enactment of a Federal censorship bill, which, while highly desirable, seemed very far from realization at the close of the year.

The possibilities of moving pictures as a medium of instruction were availed of in many ways by educational institutions, industrial establishments and in various branches of the army and navy. Greater skill in photography made it possible to take moving pictures showing processes of manufacture, physiological and biological conditions and other difficult subjects in a manner so clear that their employment was becoming indispensable to a large portion of the civilized world. Cameras were constructed capable of making pictures that, when projected on the screen made a moving object appear to move at a velocity so low that a leisurely analysis of such motion was secured for an observer. Thus a dancer, or a tennis player in action, whose pictures were projected before the onlookers appeared to float slowly in space, every move of legs or arms seeming to occur at about one one-hundredth of its ordinary velocity.

American producers enjoyed almost a monopoly of the trade in some foreign countries, with the possible exception of France and Italy. In the former country the popularity of American films caused the government to restrict their importation by prescribing a definite maximum number that might be brought in for exhibition purposes during one year. In other foreign countries it was noted with almost alarm that the opportunities offered by the United States as shown through the medium of moving pictures was causing unrest and dissatisfaction with the conditions prevailing in industry.

The cost of photoplay production continued to increase, but the business became more centralized and concentrated in the hands of a small number of producers, thus incidentally se-

curing control over the services of the stars and diminishing litigation on account of contracts broken in cases where higher compensation had been offered by a rival producer.

MUNICIPAL GOVERNMENT. Aside from a considerable addition to the list of cities that have adopted the city manager form of government and the notable charter changes at Philadelphia, there was much less change in city government in 1919 than for some years past. This is all the more remarkable because most of the State Legislatures were in session and in many States the cities are still at the will of their Legislatures as regards changes in their form of government. However, the more progressive States have already gone on so rapidly in the adoption of municipal home rule, or at least in general legislation permitting changes in the framework of government, that a lull in charter changes might be expected, especially in view of the strong reactionary tendencies following the end of the war. With more than 500 cities under the commission plan it is not surprising that scarcely any additions to the straight commission plan were reported in 1919. Probably most of the cities that adopted the manager plan voted for commission government as well, since the two generally go together. Complete lists of commission plan cities and yearly accessions to the list have been given in earlier YEAR BOOKS. The table on pages 442-43-44 of manager cities embraces the names of all places known by the National Municipal League to have adopted the city-manager plan up to Oct. 20, 1919. The table also includes a few additional cities reported in *The American City*, August, 1919.

CHARTER CHANGES. Following in considerable part the recommendations of a local voluntary charter commission, the State Legislature made sweeping changes in the charter of *Philadelphia*, effective Jan. 1, 1920. A relatively small council of 21 replaces the unwieldy bicameral council of 144 members. Radical changes affecting city contracts were made, model civil service reforms were introduced, including provision for a civil service commission of three members and prohibition of political activities and contributions by policemen and firemen. Dual office holding is forbidden. There will be a city purchasing agent and a city architect. The bureau of health is raised to a city department by dividing the old department of health and charities into departments of health and of welfare, the latter including charities, correction and recreation. A city planning commission with considerable power is authorized. The city solicitor becomes appointive instead of elective. The mayor is to submit a budget. Under the old charter, there was a select council of 48 members, one each from as many wards, and a common council of 96 members, consisting of one representative from each ward for each 4000 names on the list of assessed voters, except that each ward had at least one representative. As a result of the last-named provision, one of the older wards, with a population of 5000 to 6000, was represented in each branch of the council while the largest ward in the city, with 100,000 population, had one select and five common councilmen. The basis for council representation now is one member for each 20,000 assessed voters in each of the eight judicial districts, which gives a total membership of 21.

The members serve for four years and are paid \$5000 a year. An evil and costly provision of the old charter required street cleaning and the collection of garbage, ashes, and rubbish to be done by contract and restricted the length of the contract to a single year. This restriction made competition impossible without great risk, owing to the considerable cost of equipment for cleaning streets and collecting refuse and the very heavy cost of a garbage disposal plant. The result was that these contracts were the foot-balls—or plums—of factional politics. The new charter compels the city to do all this work itself, unless a majority of the council and the mayor decide to have it done by contract. In that case, contracts may be let for longer terms than a year and if a contract is let for more than four years the city may terminate it at will after the end of the four years, without compensating the contractor for loss of profits. At the November election, the reform candidate for mayor, J. Hampton Moore, was elected at Philadelphia by a plurality of 190,000 and a majority of 174,000, breaking all records, and it was subsequently announced that he would have the support of 11 of the 21 councilmen. *Richmond, Va.*, made a marked change in the administrative branch of its government on Jan. 1, 1919. In place of an administrative board elected by

popular vote, which board appointed the heads of the larger city departments, the mayor appoints the heads of six departments—law, finance, works, welfare, utilities, safety—and the people will elect the city comptroller and city attorney. This change by no means effects a clear-cut separation of powers and simplification of government and centralization of responsibility at Richmond, for the bicameral council is retained and four of the six department heads appointed by the mayor are subject to approval by the council. Moreover, an advisory board was created (of which the mayor, ex-officio, is chairman). This board has the approval of subordinates appointed by department heads and also has the final decision on matters referred to it by any department head. See also CITY PLANNING; GARBAGE; MUNICIPAL OWNERSHIP; ROADS AND PAVEMENTS; SEWERAGE AND SEWAGE TREATMENT; WATER AND WATER PURIFICATION.

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LIST OF CITIES AND TOWNS UNDER CITY MANAGER GOVERNMENT

Compiled by the National Municipal League as of Oct. 20, 1919.

<i>City</i>	<i>Population 1910 census</i>	<i>Date in effect</i>	<i>Manager</i>	<i>Salary</i>
Auburn, Me.....	15,062	Jan., 1918	Ed A. Beck	\$5,400
Norwood, Mass.....	8,014	Jan., 1915	Wm. P. Hammersley	3,000
Waltham, Mass.....	27,834	Jan., 1918	G. A. Bingham	5,000
West Hartford, Conn.....	4,808	.....	B. F. Miller	4,000
Auburn, N. Y.....	84,668	Jan., 1920	.....	.....
Newburgh, N. Y.....	27,805	Jan., 1916	James Miller	5,000
Niagara Falls, N. Y.....	30,445	Jan., 1916	Edwin J. Fort	5,000
Sherrill, N. Y.....	1,500*	May, 1916	C. A. Brown	.....
Watertown, N. Y.....	26,730	.....	.....	.....
Altoona, Pa.....	52,127	Jan., 1918	H. Gordon Hinkle	7,500
Ambridge, Pa.....	5,205	Nov., 1918	H. R. Hunter	4,500
Bethlehem, Pa.....	12,837	July, 1918	W. L. Miller	10,000
Edgeworth, Pa.....	1,500*	Jan., 1914	Wilbur M. Cotton	3,600
Philipsburg, Pa.....	3,585	April 1918	Roy Wilkinson	.....
Sewickley, Pa.....	4,479	Oct., 1918	W. M. Cotton	.....
Towanda, Pa.....	4,281	.....	Wm. T. Howie	1,020
Bristol, Va.....	6,247	.....	R. W. Rigsby	.....
Charlottesville, Va.....	6,765	Aug., 1913	Shelton S. Fife	1,800
Farmville, Va.....	2,971	Sept., 1917	Leslie Fogus	1,400
Fredericksburg, Va.....	5,874	Sept., 1912	Levin J. Houston	3,600
Lynchburg, Va.....	29,494	Nov., 1919	.....	.....
Newport News, Va.....	20,205	Nov., 1919	.....	.....
Norfolk, Va.....	67,452	Sept., 1918	C. E. Ashburner	9,000
Petersburg, Va.....	24,127	June, 1920	.....	.....
Portsmouth, Va.....	33,190	Jan., 1917	W. B. Bates	4,500
Roanoke, Va.....	34,874	Oct., 1918	Wm. P. Hunter	4,800
Staunton, Va.....	10,604	Jan., 1908	S. D. Holsinger	2,000
Suffolk, Va.....	7,008	.....	.....	.....
Winchester, Va.....	5,864	May, 1916	Thomas J. Thier	2,000
Beckley, W. Va.....	.....	.....	.....	.....
Charleston, W. Va.....	22,996	May, 1915	Bonner Hill	3,300
Wheeling, W. Va.....	41,641	July, 1917	Charles O. Ephlin	8,000
Elizabeth City, N. C.....	8,412	April, 1915	W. A. Jones	.....
Gastonia, N. C.....	5,759	.....	.....	.....
Goldboro, N. C.....	6,107	July, 1917	J. M. Caskell	3,000
Hickory, N. C.....	3,716	May, 1913	J. W. Ballew	1,500
High Point, N. C.....	9,525	May, 1915	.....	.....
Morehead City, N. C.....	2,500*	June, 1916	W. B. Allred	1,500
Morgantown, N. C.....	2,712	May, 1913	W. R. Patton	1,500
Reidsville, N. C.....	4,828	.....	.....	.....
Tarboro, N. C.....	4,129	April, 1915	J. H. Jacobs	1,500
Thomasville, N. C.....	3,877	May, 1915	James T. Stewart, Jr.	.....
Beaufort, S. C.....	3,700*	May, 1915	Hal. R. Politzer	1,800
Rock Hill, S. C.....	7,216	Jan., 1915	J. G. Barnwell	2,800
Sumter, S. C.....	8,109	Jan., 1913	E. S. Shuler	1,500
Cartersville, Ga.....	4,067	.....	Abram Cook	2,400
Griffin, Ga.....	7,478	Dec., 1918	E. E. Bridges	2,550
Rome, Ga.....	12,099	.....	.....	.....
Largo, Fla.....	500*	July, 1917	J. A. O'Henry	.....
Gary, Fla.....	500*	June, 1913	W. H. Turner	900
Ocala, Fla.....	4,370	Feb., 1918	M. C. Martin	.....

* Estimated.

City	Population 1910 census	Date in effect	Manager	Salary
St. Augustine, Fla.	5,494	July, 1915	Eugene Masters	\$3,600
Tallahassee, Fla.	5,018	1919	.....	.....
Alcoa, Tenn.	3,500*	1919	.....	.....
Kingsport, Tenn.	10,000*	Mar., 1917	Wm. R. Pouder	3,000
Cynthiana, Ky.	3,603	Dec., 1915	J. J. Curle	1,200
West Palm Beach	1,500*	Oct., 1919	Joseph Tirth	.....
Akron, Ohio	69,067	Jan., 1920	.....	.....
Ashtabula, Ohio	18,266	Jan., 1916	M. H. Turner	2,500
Dayton, Ohio	116,577	Jan., 1914	J. E. Barlow	7,500
East Cleveland, Ohio	9,179	Jan., 1918	C. M. Osborn	4,600
Gallipolis, Ohio	5,560	Jan., 1918	Edward E. Myers	1,500
Lima, Ohio	30,508	.....	.....	.....
Painesville, Ohio	5,501	.....	.....	.....
Sandusky, Ohio	19,989	Jan., 1918	Geo. M. Zimmerman	5,000
South Charleston, Ohio	1,400*	Jan., 1918	P. H. Cheney	1,400
Springfield, Ohio	46,921	Jan., 1914	O. C. Carr	6,000
Westerville, Ohio	3,000*	Jan., 1916	Ralph W. Orebaugh	2,100
Xenia, Ohio	8,706	Jan., 1918	Kenyon Riddle	3,000
Cambridge City, Ind.	.....	.....	H. E. Stannan	.....
Glencoe, Ill.	4,000*	Jan., 1914	H. H. Sherer	4,500
Wilmette, Ill.	4,943	1918	C. C. Shultz	.....
Winnetka, Ill.	3,168	Jan., 1915	H. L. Woolhiser	3,600
Albion, Mich.	5,833	Jan., 1916	W. E. Baumgardner	2,000
Alma, Mich.	2,757	May, 1919	W. E. Reynolds	.....
Alpena, Mich.	12,706	April, 1916	Chas. T. Park	1,800
Big Rapids, Mich.	4,519	May, 1914	Dan H. Vincent	1,200
Birmingham, Mich.	2,500*	April, 1918	Morice Lowman	.....
Cadillac, Mich.	8,375	Mar., 1914	George Johnston	2,200
Crystal Falls, Mich.	3,775	May, 1918	J. H. Sanders	3,000
Eaton Rapids, Mich.	2,400*	April, 1913	O. S. Yager	1,500
Grand Haven, Mich.	5,856	April, 1915	I. R. Ellison	2,500
Grand Rapids, Mich.	112,571	Mar., 1917	Fred H. Locke	5,000
Grosse Pointe Shores, Mich.	1,200*	June, 1916	H. N. Kennedy	1,500
Jackson, Mich.	31,433	Jan., 1915	Albert W. D. Hall	4,000
Kalamazoo, Mich.	39,437	June, 1918	H. N. Freeman	5,000
Lapeer, Mich.	3,946	April, 1919	Ray S. Blinn	.....
Manistee, Mich.	12,381	May, 1914	Philip N. Beauvais	3,000
Muskegon, Mich.	24,062	Mar., 1919	.....	.....
Otsego, Mich.	2,812	May, 1918	Gerard Allen Abbott	1,800
Petoskey, Mich.	4,778	April, 1916	James E. Niles	2,000
Portland, Mich.	2,000*	.....	F. L. Jenkins	1,800
Royal Oak, Mich.	3,200*	May, 1918	Geo. E. Weitzel	3,000
Sault Ste. Marie, Mich.	12,615	Dec., 1917	W. M. Rich	2,700
St. Johns, Mich.	3,154	Aug., 1918	A. D. Smith	2,400
Three Rivers, Mich.	5,072	April, 1918	O. O. Johnson	1,800
Anoka, Minn.	3,972	April, 1914	Henry Lee	1,200
Morris, Minn.	2,300*	Jan., 1914	Frank H. Haight	1,800
Pipestone, Minn.	3,500*	May, 1917	F. T. Cogswell	1,800
Clarinda, Iowa	3,832	April, 1913	Henry Traxler	2,000
Etherville, Iowa	3,404	.....	F. G. Connelly	3,600
Iowa City, Iowa	10,091	May, 1914	James O. Gregg	1,800
Manchester, Iowa	2,758	May, 1916	Thomas Wilson	1,440
Mt. Pleasant, Iowa	3,874	April, 1916	T. W. McMillan	1,680
Webster City, Iowa	5,208	Oct., 1915	G. J. Long	1,800
Carrington, N. D.	1,900*	May, 1917	F. J. Brier	1,200
Clark, S. D.	1,835	May, 1912	J. E. Smith	960
Dickinson, N. D.	3,678	1919	.....	.....
Augusta, Kan.	.....	.....	A. B. Hungerford	.....
Eldorado, Kan.	3,129	Mar., 1917	Bert C. Wells	3,600
Hays, Kan.	3,300*	Mar., 1919	L. O. Manning	3,000
McCracken, Kan.	.....	.....	Leonard L. Ryan	.....
Wichita, Kan.	52,450	June, 1917	L. W. Clapp	10,000
Alliance, Neb.	3,105	1919	.....	.....
Maryville, Mo.	4,762	.....	W. O. Garrett	.....
Bentonville, Ark.	2,750*	Sept., 1915	Edgar Masoner	1,500
Hot Springs, Ark.	14,434	Feb., 1917	G. R. Belding	2,100
Coalgate, Okla.	3,255	July, 1914	Leslie E. Bay	1,620
Collinsville, Okla.	2,500*	Feb., 1914	F. A. Wright	1,800
Madill, Okla.	1,800*	1917	A. P. Marsh	1,800
McAlester, Okla.	12,954	1919	E. M. Fry	5,000
Mangum, Okla.	3,667	Nov., 1914	R. B. Snell	1,800
Norman, Okla.	3,724	Sept., 1919	W. R. Gater	.....
Sallislaw, Okla.	2,500*	Nov., 1919	.....	.....
Weatherford, Okla.	2,400*	1917	M. L. Wood	1,500
Walters, Okla.	1,600*	Nov., 1919	.....	.....
Amarillo, Texas	9,957	Dec., 1913	J. D. Bartlett	2,500
Brownsville, Texas	10,517	Jan., 1916	W. E. Anderson	3,600
Brownwood, Texas	6,967	1917	E. R. Brashear	.....
Bryan, Texas	4,132	Aug., 1917	J. W. Greer	2,400
Denton, Texas	4,732	April, 1914	P. J. Beyette	2,000
Eastland, Texas	.....	Jan., 1919	Walter Lander	.....
Electra, Texas	.....	1919	W. H. Larson	.....
Lubbock, Texas	2,200*	Operation postponed	Martin S. Ruby	.....
Lufkin, Texas	2,749	1919	L. Mitchell	.....
Ranger, Texas	6,000	1919	M. A. Turner	.....
San Angelo, Texas	10,321	April, 1916	E. L. Wells	2,500
Sherman, Texas	12,412	April, 1915	O. J. S. Ellingson	3,600
Stamford, Texas	3,902	.....	E. A. Burro	1,800
Taylor, Texas	5,314	April, 1914	A. V. Hyde	2,600
Teague, Texas	3,288	Jan., 1915	C. E. Johnson	1,700
Terrell, Texas	7,050	1919	J. P. Kittrell	.....
Tyler, Texas	10,400	April, 1915	H. J. Gresser	8,000

* Estimated.

City	Population 1910 census	Date in effect	Manager	Salary
Yoakum, Texas.....	4,657	April, 1915	J. E. Lucas	.....
Columbus, Mont.....	1,000*	.....	Fred Fahrion	.....
Glasgow, Mont.....	5,000*	July, 1916	Harvey Booth	2,100
Boulder, Col.....	9,589	Jan., 1917	W. D. Salter	.....
Durango, Col.....	4,686	Mar., 1915	A. F. Hood	1,800
Montrose, Col.....	8,254	Feb., 1914	C. C. Smith	1,800
Albuquerque, N. M.....	10,020	Jan., 1918	A. R. Hebenstreit	3,600
Clovis, N. M.....	3,255	.....	Oscar Dobbs	.....
Roswell, N. M.....	6,172	May, 1914	A. G. Jaffa	2,400
Brigham City, Utah.....	8,685	Jan., 1918	Chas. O. Roskelley	2,100
Phoenix, Ariz.....	11,134	April, 1914	V. A. Thompson	5,000
La Grande, Ore.....	4,843	Oct., 1913	Fred Currey	2,400
Alameda, Cal.....	23,383	May, 1917	Chas. E. Hewes	5,000
Alhambra, Cal.....	5,021	July, 1915	Grant M. Lorraine	2,500
Bakersfield, Cal.....	12,727	April, 1915	Jay Hinman	3,000
Glendale, Cal.....	2,746	May, 1914	Thomas W. Watson	2,400
Huntington Beach, Cal.....	1,500*	July, 1916	G. W. Spencer	2,400
Pittsburg, Cal.....	7,000*	.....	.....	.....
Redding, Cal.....	3,572	.....	.....	.....
San Diego, Cal.....	39,578	May, 1915	E. A. Rollison	.....
Salinas, Cal.....	8,736	.....	F. M. Lockwood	6,000
San Jose, Cal.....	28,946	July, 1916	Dr. W. C. Bailey	6,000
San Anselmo, Cal.....	2,500*	.....	C. A. Macomber	1,500
Santa Barbara, Cal.....	11,659	Jan., 1918	R. A. Craig	7,500
Anchorage, Alaska.....	4,800*	July, 1915	J. G. Wade	3,300
Powell River, B. C.....	.....	.....	R. H. Scanlon	.....
Westmount, P. Q.....	19,000*	April, 1913	Geo. W. Thompson	.....
Woodstock, N. B.....	.....	.....	.....	.....

* Estimated.

MUNICIPAL LEAGUE, NATIONAL. An organization, founded in 1894, for the study of municipal problems, and the dissemination of information on the subject. The 25th annual meeting was held in Cleveland, Dec. 29-31, 1919, and took the form of a Moot Constitutional Convention at which sundry questions of constitutional reform were discussed at length. Various propositions were submitted by various organizations like the National Short Ballot Organization, the American Judicature Society, the National Conference of Research Bureaus. These various organizations presented reports which were tentatively debated. An expression of opinion resulted in favor of the single chamber legislature to be elected on the Hare System of Proportional Representation, a governor with full power of appointment and veto and a further power to dissolve a legislature which turned down any of his measures. The vote also favored a budget prepared by the executive which could be reduced but not increased by the legislature, also municipal home rule as provided for in the Model City Charter of the National Municipal League, and various electoral reforms. The Moot Convention was sympathetic with demands of labor and favored shorter hours and social insurance. Other features of the Convention were the discussion of the street railways and the continuance of the five cent fare. The national budget also came in for considerable amount of attention.

Mr. Woodruff retired after 25 years of service. In connection with this a testimonial was presented to him with the following tribute: "As every institution is but the lengthened shadow of a man, so the National Municipal League hereby gratefully acknowledges that it is but another name for Clinton Rogers Woodruff who has been for 25 years its devoted secretary, its organizing genius, its motive force, its guiding spirit. He found the National Municipal League a mere project; he leaves it the central force of American civics. He found municipal reform a feeble aspiration; he leaves it the foremost achievement of modern democracy." His successor has not yet been chosen.

The *National Municipal Review*, first pub-

lished in 1912, in succession to the *Proceedings of the National Municipal League*, was converted during the year into a monthly under the editorial supervision of Clinton R. Woodruff, Charles C. Williamson, and Richard S. Childs, with Russell Ramsey as assistant editor.

During the year two important studies were published: *The Assessment of Real Estate*, by Lawson Purdy, president of the League, and the other on the *Administrative Consolidation in State Governments*, by A. E. Buck, of the New York Bureau of Municipal Research. Two volumes were published during the year in the National Municipal League Series, one on *Experts in City Government*, edited by E. A. Fitzpatrick, and the other *A New Municipal Programme*, edited by Clinton R. Woodruff. Officers for 1920 are: President, Charles E. Hughes; treasurer, Frank A. Vanderlip; and honorary secretary, Clinton R. Woodruff.

MUNICIPAL OWNERSHIP. The greatest gain in municipal ownership for many years was the transfer to the city of *Seattle* on March 1st, by the Puget Sound Traction, Light & Power Co., of 203 miles of street railway track for \$15,000,000. This action was authorized by a popular vote of 4 to 1 in November, 1918, and by a 5 to 2 vote of the city council on December 31st following. The company agreed to sell electric current to the city at 1 cent per kilowatt hour until the city is ready to supply its own power. A \$5,500,000 bond issue has been voted at *Seattle* for a city hydro-electric plant. Both *Detroit* and *Duluth* voted against municipal ownership of street railways on April 7, 1919. At *Detroit*, where \$31,500,000 was to have been paid for the privately owned street railway, the vote was 63,382 against and 59,497 for the purchase. At *Duluth* there were 8806 noes and 4902 ayes. On the same day that these adverse votes were cast, *Superior, Wis.*, voted by a large majority to buy the privately owned water, gas, electric light and power plants. Next to *Seattle* stands *San Francisco* among American cities as an owner and operator of street railways. Towards the end of the year it owned about 64 miles of single electric street railway track and 195 passenger cars, compared with 286 miles

of track and 700 cars owned by the United Railways and 10 miles of privately owned street cable railways. A \$6,000,000 bond issue for municipal subways to relieve street car congestion in the centre of Pittsburgh was authorized by popular vote during the year and elaborate engineering reports favoring subways were submitted at Cleveland and Detroit. Slight progress was made by the city on the rapid transit subway system previously authorized at Cincinnati. A large number of railway receiverships throughout the United States and prospects of many others, attributed generally to the high cost of labor and materials, led to much talk of municipal ownership. In New York, municipal bus lines were established because of the abandonment of some of the street railway lines, while the persistent refusal of the city authorities to permit increases in fares made the street railway situation there quite uncertain at the close of the year, with some general proposals looking to municipal acquirement. At Minneapolis, under a new service-at-cost street railway franchise settlement, subject to referendum vote in December, the city has the right to buy the property of the Twin City Rapid Transit Co. at stated intervals, at the basic price of \$24,000,000, as of Jan. 1, 1919. In June, Greater Berlin, Germany, acquired the street railways known as the Metropolitan surface lines at a price of 100,000,000 marks, or \$24,300,000 on the pre-war exchange basis. In the *water-works* field, Des Moines acquired the plant of the local water company late in the year at a valuation of \$3,535,000, thus ending a long struggle for municipal ownership. In 1906, a water purchase election in Des Moines was lost by a technicality and another one was lost in 1912 for lack of the majority required by law, although there was an actual majority. In the 1919 election at Des Moines the vote for purchase was 2773 to 1998. Los Angeles voted \$11,000,000 of bonds to buy the electric distributing system of the Southern California Edison Co., and \$2,500,000 for the further development of electric current from the waters of the Los Angeles aqueduct. Although few large American cities yet own their own *electric lighting* systems, yet the number of municipal electric light plants throughout the country is large. The McGraw "Central Station Directory" for 1919 showed that of 5543 electric light systems in the United States and its possessions 1821 were municipally owned. In Canada the corresponding figures were 441 and 251 and in Mexico, 51 and 2. Not all the companies or cities generate the current they sell. That is, of the 5543 systems listed in the United States, 893, regardless of ownership, buy current and of the 1821 municipal systems in the United States current is bought by 304. The distribution of the systems by ownership in the United States is shown by the accompanying table. Allied to municipal ownership is the "Municipal Savings Bank" at St. Paul, Minn., which on July 1, 1919, after several years' operation, had total deposits of \$3,635,000. Operated by a single clerk, this bank accepts deposits and issues 4 per cent certificates redeemable on demand with interest. The deposits are used to buy tax certificates and bonds of the city of St. Paul, particularly when the city would otherwise have to pay high interest rates. *Ice Making* by Kansas City, Mo., would be unconstitutional, according to a ruling

of the State Supreme Court in litigation to prevent a \$400,000 bond issue for that purpose. The court held, 6 to 1, that ice making is a private and not a public enterprise, but the dissenting Judge maintained that ice is a prime necessity in cities and that its manufacture is for the protection of health and therefore an exercise of the police power.

Bibliography. Lincoln, *The Results of Municipal Ownership in Massachusetts* (Boston). Cammen, *Government Ownership of Public Utilities in the United States* (New York).

MUNICIPAL OWNERSHIP OF ELECTRIC LIGHTING SYSTEMS IN UNITED STATES AND POSSESSIONS.

(From McGraw Central Station Directory)

State	Number of systems	
	Total	Municipal
Alabama	63	33
Alaska	12	0
Arizona	80	2
Arkansas	79	19
California	91	19
Colorado	60	11
Connecticut	39	3
Delaware	12	6
District of Columbia	2	0
Florida	84	25
Georgia	151	98
Hawaii	5	0
Idaho	87	7
Illinois	241	85
Indiana	197	71
Iowa	214	92
Kansas	248	142
Kentucky	99	23
Louisiana	63	29
Maine	85	3
Maryland	45	9
Massachusetts	128	37
Michigan	197	91
Minnesota	213	115
Mississippi	84	43
Missouri	285	72
Montana	54	6
Nebraska	225	123
Nevada	9	1
New Hampshire	53	3
New Jersey	60	14
New Mexico	27	4
New York	315	47
North Carolina	120	51
North Dakota	108	16
Ohio	284	121
Oklahoma	141	71
Oregon	57	10
Pennsylvania	243	41
Philippine Islands	4	0
Porto Rico	5	1
Rhode Island	11	2
South Carolina	75	31
South Dakota	102	80
Tennessee	90	28
Texas	243	22
Utah	30	15
Vermont	55	18
Virginia	82	19
Washington	86	13
West Virginia	61	5
Wisconsin	265	94
Wyoming	29	5
Total United States	5543	1821

MURRAY, General Sir JAMES WOLFE. British army officer, appointed chief of the imperial general staff in December, 1914, died at Peebles, Scotland, October 18. He was born March 13, 1853, and educated at Harrow and Woolwich, rose to the rank of colonel in 1889, served in Ashantee in 1895, and was in command of the lines of communication in Natal, 1899-1900. He served in India from 1903 to 1911. He was appointed to the general staff on the recommenda-

tion of Lord Kitchener, and remained at that post till 1915. He subsequently held the post of commander-in-chief of the Eastern command.

MURRAY RIVER DAMS. See DAMS.

MUSCLE SHOALS DEVELOPMENT. See DAMS.

MUSEUMS. See PAINTING AND SCULPTURE.

MUSIC. GENERAL NEWS. More rapidly than any one could have foreseen have the various musical activities been resumed in the war-torn countries of Europe. Scarcely had the armistice been signed, when the managers set to work making plans. The first concerts at the beginning of the year, it must be admitted, were more or less impromptu affairs to celebrate victory and also to satisfy a long pent-up craving. But as demobilization progressed and the artists returned to the posts they had left, little time was lost in bringing order out of chaos. At the opening of the fall season, early in September, the gaps made by the war in the ranks of the executants had been filled, almost all former organizations had returned to their normal schedule, and many new organizations—some on a grand scale—had been formed to meet the unprecedented demand for musical entertainment of the better class. While in all countries the war has helped the cause of the native composer, it is a remarkable fact that, musically at least, it has created no narrow-minded prejudice, as is evidenced by the scope of the programmes, whose arrangers seem to have been guided mainly by artistic considerations. At vastly increased prices of admission the concert-halls have been crowded more than they ever were before the war.

In the United States the opening of many new concert auditoriums in the larger cities, the formation of new organizations, especially in the smaller towns, and the general increase in the number of concerts of existing societies testify to the fact that the higher type of music is ever widening its sphere of influence.—At the instance of the Society of Authors, Playwrights, and Composers Congress amended the copyright-law of 1909, so that now both American and foreign composers are duly protected. The interruption of the transatlantic mail service shortly after the outbreak of hostilities had brought about a condition which practically amounted, for a time, to a suspension of international copyright.—In June 200 concert-managers from all over the country met in New York and formed The National Concert-Managers' Association for the mutual protection of its members and the promotion and development of the musical interests of the country.—By the will of the late Augustus D. Juilliard (died April 25th) the Juilliard Musical Foundation, with an endowment of \$20,000,000, was established for the purpose of aiding talented students in obtaining a complete education either in this country or abroad.—After several months' deliberation concerning the feasibility of the project a number of prominent musicians met in New York on April 29th and organized The Society for the Publication of American Music. Its object is the publication of such works (chiefly chamber-music) by American composers which, because of their lack of commercial value, offer no inducement to the regular publishers. A committee of musicians of established reputation will pass on the merits of the manuscripts submitted, of which three or four are to be pub-

lished every year. Any person interested in this object may become a member (\$100 for life-members, or \$5 annual dues). In May, Georges Longy of Boston organized The Boston Musical Association, whose aims are to be practically identical with those of the famous Société Nationale de Musique of Paris. Of the five annual concerts two are to be devoted to works for large orchestra, two to chamber-music, and one to works for small orchestra. The intention is to produce modern works of all schools, thus forcing the American composer into a healthy competition with the world's best contemporary musicians. The soloists are to be selected from among aspiring young artists whose talent seems to give promise of a successful career.—On November 25th the Maryland Academy of Sciences, at Baltimore, formally created a musical section with J. Norris Herring as chairman. Its object, like that of similar European institutions, is the publication of its proceedings and articles embodying the result of original research.—Prizes offered by the New York *American* for a national anthem were distributed as follows: 1st (\$2000), Herman T. Koerner of Buffalo; 2d (\$1000), Giuseppe Pinsuti of New York; 3d (\$500), Charles W. Cadman of Los Angeles; 4th (\$300), Henry F. Gilbert of Cambridge. Among the judges were Joseph Stransky, John Philip Sousa, and John McCormack.—An unusual number of changes in the wood-wind section of some of the leading symphony orchestras led to the discovery of a dearth of good American oboe-players. To stimulate the study of this instrument Walter Damrosch endowed three scholarships at the Institute of Musical Art, in New York, to be awarded as the result of a competitive examination. Each scholarship is for three years, providing free tuition and \$400 annually toward living expenses.

THE UNITED STATES

ARTISTS. *Instrumentalists.* The American début of the Russian pianist Benno Moiseiwitsch (New York, November 29th) fully justified the reputation which had preceded him. Although his tone is not large, it is sympathetic and capable of an infinite variety of gradations. Of the new pianists heard he was the most important. The many excellent qualities of the Dutch pianist Jan Chiapusso (début in New York, March 18th) would undoubtedly have appeared in higher relief if his tonal coloring had shown a little more variety. Flora Mora, esteemed in Cuba as the foremost native pianist, revealed at her American début (New York, October 19th) deep poetic insight and a fine sense of tonal color. A young American, Ralph Leopold (début in New York, October 26th), made a deep impression with his poetic conception and unusually beautiful tone. He recalled memories of De Pachmann, whom he seems to have taken as a model. Like the older artist, he seemed to be afraid of a real fortissimo. Judgment should be reserved in the case of the French pianist Robert Schmitz (début in New York, December 5th), who at his first recital played only works by impressionist composers, which gave him ample opportunity for the display of a flawless technic and an immense variety of tonal coloring. Magdeleine Brard, a 16 year old French girl, who had been heard in 1918 with the Conservatoire orchestra outside of New York, gave

her first recital in the metropolis on February 4th, and was heard again in the fall. Her playing is full of vitality, although her interpretative powers are not yet quite adequate for some of the heaven-storming works of Chopin or Schumann. Special interest was manifested in the reappearance, after an absence of six years, of Joseph Lhevinne (New York, December 1st). Although his former tours had securely established his reputation as one of the giants of the keyboard, he was occasionally guilty of a hard, colorless tone. That one defect seems to have been completely eliminated. His reception was a perfect ovation. Arthur Rubinstein, who had not been heard here since his début as a child prodigy in 1906, returned as a mature artist (New York, February 20th). He has developed into a very temperamental player with a tendency toward excessive speed in fast movements. Several years' absence had wrought no change in the art of Germaine Schnitzer (New York, November 17th). She is still the brilliant executant of almost masculine power, lacking in poetic sentiment and tonal variety. After a long and dangerous illness, which had prevented public appearances for two years, Fannie Bloomfield Zeisler proved to enthusiastic audiences of the Middle West that she is still in full possession of her rare power. On October 10th Richard Buhlig began in New York a unique series of seven piano-recitals. His aim was to present as much as possible of the permanently significant literature for the piano from Bach to the present day. But, instead of following the usual custom of chronological arrangement, he grouped the numbers of each programme according to some psychological relationship. On January 25th Josef Hofmann gave in New York a recital of American works exclusively (repeated later in Boston). On both occasions he played to small, undemonstrative audiences, whereas his regular recitals drew overcrowded houses, as usual. For some time it has been noticeable that futuristic composers usurped more and more space on the programmes of Leo Ornstein. At any rate, he has succeeded in attracting numerous admirers of this new style. His recital in New York, on October 18th, offered for the first part a group of futuristic works, for the second part works of Schumann and Liszt. After the first part the greater number of the audience left, and Ornstein's playing of the second part proved that he had little sympathy for what he was playing; that his excessive devotion to futurism had seriously impaired his former remarkable power in the interpretation of serious music. Two débuts of child prodigies are worthy of record. On December 12th Maria Antonia, a nine year old Brazilian girl, gave a recital in New York to raise funds for further study in Paris. She had wisely chosen such works of Bach, Beethoven, Brahms, Chopin, and Grieg as were fully within her interpretative power. Her exquisite tonal effects, reliable technic, and remarkable feeling for style aroused her hearers to such an extent that a week later she was obliged to give a second recital by request. The day after her first recital eight-year-old Jerome Rappaport was heard in a more ambitious programme, somewhat beyond him, but disclosing talent of a high order. The début of the sisters Rose and Charlotte Presselle (New York, April 2d) in ensemble-performance of works for two pianos was an emphatic success. The Sutrø

sisters, Rose and Otilie, long famous in this special field, introduced a novelty by Brahms, a sonata for two pianos, in F minor, op. 34b. In this form the work was originally conceived, but Brahms rewrote it as a piano-quintet, in which form it has become famous. Among the pianists whose art is familiar to the public were Sergei Rachmaninov, Sergei Prokofiev, Leopold Godowsky, John Powell, Ernesto Berumen, Harold Bauer, Alfred Cortot, Mischa Levitzki, Rudolf Ganz, Ossip Gabrilowitsch, Ernest Hutchinson, Aurelio Giorni, Paolo Martucci, Guiomar Novaes, Ethel Leginska, Olga Samarov, Eleanor Spencer, Augusta Cottlow, Aurore La Croix, Marguerite Volavy. The most important event in the world of violinists was the reappearance of the Austrian violinist Fritz Kreisler, who had kept himself in strict retirement during the period of the war. His first concert in New York (October 28th) aroused such frenzied enthusiasm that the oldest concert-goers do not recall similar scenes even in the days of Patti. At one of the concerts of the Cincinnati Symphony Orchestra (February 2d) Eugène Ysaÿe played three concertos (Bruch's No. 1, Viotti's No. 22 and Lalo's *Symphonie Espagnole*). Not a single new violinist of importance was heard. The only début was that of a young American violinist, Rudolf Polk (New York, October 14th), who proved himself a serious artist of solid attainments, but lacked the divine fire. However, lovers of the violin had ample opportunities of hearing such artists as Mischa Elman, Jascha Heifetz, Efrem Zimbalist, Jacques Thibaud, Toscha Siedel, Albert Spalding, Max Rosen, Eddy Brown, Cecil Burleigh, Samuel Gardner, Maud Powell, Emily Gresser, Isolde Menges, Thelma Given. No other year ever brought so few representatives of the violoncello. The list of important artists is exhausted by mentioning Alwin Schroeder, Leo Schulz, Pablo Casals, Maurice Dambois, Cornelius Van Vliet, Vladimir Dubinsky, Willem Willeke, May Mukle.

VOCALISTS. Quantitatively, the year was rich in vocal recitals given by many artists; qualitatively, it was as uninteresting as its predecessor. Only toward the end did a few of the German Lieder (in English translation) appear on some programmes. After an absence of almost 10 years Luisa Tetrassini received a royal welcome at her first concert (New York, November 30th). Neither her voice nor her style showed any change. Another prime favorite, Emmy Destinnova (having changed her name from Destinn) reappeared after an absence of four years with the Cincinnati Symphony Orchestra (New York, November 30th). Of famous operatic singers Yvonne Gall (March 28th), Rafaelo Diaz (April 6th) and Cyrene Van Gordon (October 5th) made their début in recital in New York, duplicating their success of the operatic stage. Among the débuts of many younger aspirants to fame that of Otilie Schillig (New York, November 3d) attracted more than ordinary attention by the fine quality of her voice, personal magnetism and interpretative ability. A new Russian singer, Nina Tarasova, gave a number of very successful recitals, in costume, of Russian folk-songs and ballads (début in New York, April 27th). Among the famous vocalists heard on the concert-stage were Geraldine Farrar, Amelita Galli-Curci, Ernestine Schumann-Heink, Louise Homer, Alma

Gluck, Vera Janacopulos, Rosa Ponselle, Eva Gauthier, Louis Graveure, Paul Reimers, Reinald Werrenrath, Josef Rosenblatt.

ORCHESTRAS. The extensive changes in its personnel and the lax discipline under the new conductor, Henri Rabaud, caused a very noticeable deterioration in the quality of the performances of the Boston Symphony Orchestra. The new conductor, Pierre Monteux, who assumed his duties in the fall, made a favorable impression, but only time will tell whether he can accomplish the difficult task of winning back for the orchestra its former prestige. By the will of Colonel Higginson his musical library and collection of instruments are left in trust to Charles F. Adams, who may allow the use of them to the orchestra free of charge. In not less than three, nor more than five years, they are to be turned over to the orchestra, if it continues to live up to the high ideals of its founder. Otherwise, music and instruments are to be sold. The New York Philharmonic Society (Josef Stransky) adopted a new policy. Instead of repeating the Thursday evening programme on Friday afternoon, different programmes are now presented at both concerts. On April 23d they gave a remarkable demonstration of the progress made in preserving an artist's actual playing by means of mechanical records. After the first movement of Mendelssohn's Concerto in G minor had been played from a record made by Leo Ornstein for the Ampico, the artist personally performed the remaining movements. Many new artists took the places of wood-wind players of the New York Symphony Society, as the majority of the former members had resigned to join the New York Chamber-music Organization; G. Tinlot succeeded A. Saslavsky as concert-master. The special concerts given the preceding year in New York by the Philadelphia Symphony Orchestra (Leopold Stokovsky) were so successful that the organization instituted a regular annual series of five in New York. On October 23d the Detroit Symphony Orchestra (Ossip Gabrilowitsch) inaugurated Orchestra Hall, their new permanent home. After a temporary retirement, pending his admission to American citizenship, Frederick Stock reappeared on February 28th as regular conductor of the Chicago Symphony Orchestra. For the first time in its history the Minneapolis Symphony Orchestra (Emil Oberhoffer) was directed by guest-conductors (Adolf Weidig and Artur Bodanzky). The St. Louis Symphony Orchestra (Max Zach) was increased to 81 performers. Prominent business men of Seattle subscribed \$70,000 for three years as a guarantee fund for their local Symphony Orchestra (John Spargur). W. A. Clark, Jr., of Los Angeles, gave \$100,000 for establishing the new Philharmonic Orchestra, of which Walter Rothwell was chosen conductor. It is planned to give 12 pairs of symphony concerts on Fridays and Saturdays, a series of five popular Sunday concerts and 10 children's concerts with explanatory lectures. The opening concert took place on October 24th. For the purpose of making propaganda for futurist music the New Symphony Orchestra, with Edgar Varese as conductor, was founded in New York. Of three proposed concerts the first (April 11th) proved such a complete fiasco, that the promoters changed their plans immediately. The incompetent conductor was replaced by Artur Bo-

danzky, who substituted music of recognized standards for the futurist programmes, and aroused such enthusiasm by the remaining concerts that the orchestra was incorporated as a permanent organization. The opening concert of its first regular season took place on October 9th.

CHAMBER-MUSIC. Jacques Thibaud and Harold Bauer attracted attention by a series of recitals in which they performed all the violin sonatas of Beethoven. Paul Shirley, a member of the Boston Symphony Orchestra, gave recitals of early music written for the viola d'amore. It was the first time that this instrument was heard as a solo instrument in this country. The continued interest in earlier music secured good-sized audiences also for the Société des Instruments Anciens, who made their third consecutive tour of the country. After his discharge from the army Ugo Ara resumed his place as viola-player of the Flonzaley Quartet. A new quartet by Le Guillard, played in New York (November 25th), proved a decided disappointment. Fritz Kreisler's Quartet in A minor, introduced by the Letz Quartet (New York, April 15th), did not fulfill expectations. It was pretty, ingratiating music, but scarcely a valuable contribution to chamber-music. A unique organization was the Zimro Ensemble (G. Mistechnik, 1st vl.; N. Moldavan, 2d vl.; G. Besrodny, vla.; J. Tcherniavsky, vcl.; S. Bellison, clar.; L. Beierdichevsky, pf.), specially formed for the purpose of raising funds for the erection of a conservatory in Jerusalem in connection with the work of the Central Zionist Committee of Russia. At their début in New York (November 1st) they offered an interesting programme of works by unknown modern Jewish composers. The newly organized Beethoven Association of New York gave its first concert on November 11th, with Harold Bauer, Jacques Thibaud, Louis Svecenski and Willem Willeke. Their object is the production of less-known chamber-music with the most eminent artists. These give their services gratuitously, and the proceeds are applied to the relief of needy musicians. The most important event in the field of chamber-music was the second annual Berkshire Festival at Pittsfield, Mass. (September 25th-27th), with the assistance of the Berkshire and Flonzaley quartets and Harold Bauer. Ernest Bloch's *Suite* for viola and piano, played by Bailly and Bauer, won the \$1000 prize. It is thoroughly original, great music, not readily grasped at a first hearing. The second prize for a work in the same form was awarded to Rebecca Clark, and was played by the same artists. It impressed more by its masterly workmanship than the originality of its thematic material. Elgar's new string-quartet in E minor, op. 83, was exceedingly uninteresting. D. G. Mason's *Pastorale* for clarinet, viola and piano was anything but pastoral in character; it was too long and lacked real inspiration. More interesting was Leo Sowerby's *Trio* for flute, viola and piano, of which the last movement was really fine. Saint-Saëns' new string-quartet in G, op. 163, added nothing to the composer's reputation. Besides these novelties the programme offered two of Beethoven's later quartets (op. 132 and 135), Brahms' horn trio in E, Mozart's Quartet in Bb, Dvorak's Quartet in Eb, and Beethoven's Septet in Eb.

CHORAL SOCIETIES. Unusual interest was

aroused by the American début (New York, September 18th) of the Vatican Choirs, a combination of 70 selected singers from the Sistine Chapel, the basilicas of St. Peter and St. John Lateran, and the Pontifical School of Higher Sacred Music, under the direction of Padre Raffaele Casimiri. During the 16 centuries of their existence these famous choirs had never sung outside of their proper sphere of activity in Rome until, just before embarking for America, early in September, they were heard in the Cathedral of St. Mark, Venice. While their rendition of a cappella music was in all respects the acme of perfection, as was expected, it must be admitted that the extraordinary interest shown was due rather to historical association than to intrinsic artistic superiority over some other choirs lacking the glamor of ancient tradition. It was also admitted that, on the whole, the American ear prefers the quality of women's voices to that of boys. During the year the Harvard Glee Club (Archibald T. Davison, conductor) separated from the Mandolin and Banjo Clubs to devote its entire energy to the cultivation of serious music. The programme of the opening concert, in December, comprised works by Palestrina, Bach, Brahms, Borodin, Bantock and Foote. The Columbia Chorus (William H. Hall, conductor) gave a Victory Commemoration Festival at Columbia University (May 5th-7th), presenting Verdi's *Requiem* as the principal number. A novelty, Percy Fletcher's *Song of Victory*, proved a very dull, bombastic work. In this connection mention may be made of the fact that most choral societies throughout the country produced in the early spring odes or songs to Victory, written especially for the occasion. Of these innumerable compositions scarcely one is likely ever to have a second hearing. In New York a new association, the Euphony Society (70 female voices and orchestra of 40, under Carl Hahn) gave its initial concert on November 21st. After a year's intermission, owing to its conductor's activity in war work, the Musical Art Society of New York (Frank Damrosch) entered upon its 26th season on December 16th.

FESTIVALS. The fifth annual Newark, N. J. Festival (May 16th-19th) under the direction of Mortimer C. Wiske, took the form of a victory celebration, offering little of permanent interest. At the 26th Ann Arbor Festival (May 14th-17th), conducted by Dr. Albert A. Stanley, the conductor's cantata, *Fair Land of Freedom*, rose somewhat above the ordinary level of occasional pieces, without, however, exhibiting real inspiration. The 11th Chicago North Shore Festival at Evanston (May 30th-June 5th), under the direction of Peter A. Lutkin, ended with a "Victory Night," when Lutkin's *A Hymn of Thanksgiving for Victory* and Arne Oldberg's *Festal Rhapsody* had their first performance. The 20th Norfolk, Conn., Festival (Litchfield County Choral Union), directed by Arthur Mees and Henry P. Schmitt, brought out two interesting novelties. Victor Kolar's *Lyric Suite* No. 2 was full of melodic and harmonic charm, heightened by fine orchestra coloring. Edgar Stillman Kelley's *Alice in Wonderland* impressed by skillful, dainty characterization and a certain quaint humor. The second day was devoted to a concert-performance of Saint-Saëns' *Samson and Dalilah*, while the rest of the programmes brought welcome repetitions of

successful novelties produced at former festivals. The 14th Bethlehem Bach Festival (June 6th and 7th), under Frederick J. Wolle, offered a number of cantatas for the first day, while the second day was given to a masterly performance of the Mass in B minor. The programmes of the 61st Worcester Festival (October 6th-11th), conducted by Arthur Mees, consisted exclusively of works by American composers interpreted by American artists. The composers represented were MacDowell, Chadwick, Parker, Herbert, Foote, Goldmark, Kelley, Hadley, Powell, Campbell-Tipton, Mabel Daniels and Mrs. H. H. A. Beach. Strange to say, no novelties were presented. After the festival it was announced that Arthur Mees had resigned the post as conductor, which he had filled with distinction since 1908. His successor will be Nelson P. Coffin, conductor of the Keene Choral Club. Availing themselves of the presence of the Metropolitan Opera Company, the people of Richmond, Va., had arranged a festival (April 28th and 29th), conducted by Richard Hagemann, which roused such enthusiasm that a number of prominent citizens took immediate steps toward the establishment of a permanent symphony orchestra. For Berkshire Festival see *Chamber-Music*.

NOVELTIES. The Boston Symphony Orchestra produced the following novelties: Edward B. Hill, *Stevensoniana*, an orchestral suite after Stevenson's *A Child's Garden of Verses* (April 11th), full of delicate touches and exquisitely orchestrated. Raoul Laparra, *A Basque Sunday*, symphonic poem for piano and orchestra (April 18th); played by the composer poetically conceived, with splendid local color obtained by the employment of real Basque melodies. Vincent d'Indy, *Symphony No. 3, Sinfonia brevis de Bello Gallico* (October 29th), a work of uneven inspiration, containing some fine passages, but decidedly inferior to the composer's preceding symphonies. George W. Chadwick, *The Angel of Death*, symphonic poem (November 21st), an impressive dirge for those fallen in the war. Charles T. Griffes, *The Pleasure Dome of Kubla Khan*, symphonic poem after Coleridge (November 28th), shows rather pronounced influence of modern Russian composers. The New York Philharmonic Society contributed Bernard Rogers' *To the Fallen* (November 13th), not strikingly original, but straightforward, sincere music. A. Dvorak, *Symphony No. 3, op. 76* (November 21st), a work brimful of inspiration and originality. Albert Chiaffarelli, *Prelude to a Merry Play* (December 5th), a work of exuberant spirit, splendidly instrumentated. Florent Schmitt, *Rapsodie Viennoise* (December 11th), remarkably fine in melodic invention, but too heavily scored. The Chicago Symphony Orchestra brought out Rossetter Cole's concert-overture, *Pioneer, 1818-1918* (March 14th), not distinguished in its thematic material, but effectively scored. Adolph Weidig, *Concert-Overture* (April 11th), rather superficial, but brilliantly orchestrated. To the credit of the Philadelphia Symphony Orchestra are to be placed Samuel Gardner's symphonic poem, *New Russia* (October 24th), pleasing for its ingratiating melody, but hardly characteristic of its title. Henry Hadley's concert-overture, *Othello* (December 26th), a respectable work, but not among the author's best. The New York Symphony Society introduced Charles T. Griffes' *Poem for*

flute and orchestra (November 16th), a very poetic and inspired work. For the production of Sophocles' *Electra* at the University of Kansas (June 5th), Charles S. Skilton wrote appropriate incidental music in free style, with only occasional use of Greek modes. Similar music was furnished by E. G. Strickland for a performance of *Miriam* at the Greek Theatre at Berkeley Oval, Cal. (August 1st). See also *Chamber-Music and Festivals*.

OPERA. At the Metropolitan Opera House in New York 155 performances were given from a repertory of 40 works by 26 composers. According to nationality these were divided as follows: Italian, 22 works by 9 composers totaled 86 performances; French, 9 works by 8 composers totaled 34 performances; German, 3 works by 3 composers totaled 14 performances (given in English, French and Italian); Russian, 3 works by 3 composers totaled 12 performances; American, 3 works by 3 composers totaled 9 performances (3 evenings of triple bills). Puccini, represented by 5 works, had 28 performances; next came Verdi with 5 works and 20 performances. The operas most frequently given were *Aida*, *Carmen* and *Madama Butterfly*, each 7 times. The first novelty was Leroux's *La Reine Fiammette* (January 24th), with Farrar, Lazaro and Rothier in the principal rôles, under the direction of Monteux. Written to a fine libretto by Catulle Mendès, the music was very weak, eclectic and absolutely devoid of inspiration. Neither the gorgeous staging nor the fine singing could save the work from being a complete failure. Two American one-act operas, Joseph C. Breil's *The Legend* and John Adam Hugo's *The Temple Dancer*, had their première on March 12th, both conducted by Moranzoni. The former was sung by Ponselle, Althouse and d'Angelo, the latter by Easton, Schlegel and Kingston. Both suffered from a poor libretto. Breil's music was trivial, even technically unsatisfactory. Hugo's music was exceedingly reminiscent, but unpretentious and pleasing; voices and orchestra were well handled. Albert Wolff's *L'Oiseau Bleu*, with Easton, Gordon, Bérat, Rothier and Ananian, directed by the composer, had its world-première on December 27th. Special lustre was lent to the occasion by the presence of the distinguished librettist, Maurice Maeterlinck, who was making his first tour of the United States, and whose play (in English as *The Blue Bird*) has been familiar here for several seasons. As far as costumes and stage-setting were concerned, it may be said without exaggeration that nothing so elaborate and gorgeous has yet been seen on the American operatic stage. But the music proved a sad disappointment. In the first place, the composer lacks the power of musical characterization. There is no real, sustained melody and not a single climax; the extreme delicacy of the instrumentation soon wearies the listener. How little the huge audience was impressed by the music was proved by the fact that no marked demonstration occurred until the poet appeared before the curtain. Elaborate revivals of three older operas, Gounod's *Mireille* (February 28th), Halévy's *La Juive* (November 22d) and Rossini's *L'Italiana in Algeri* (December 5th), only demonstrated that all those works are hopelessly dead. Worthy of record is the fact that Cadman's *Shanewis*, an American novelty of the preceding year, was the only one of all Ameri-

can operas produced at the Metropolitan that was deemed of sufficient merit to deserve repetition in a later season. Of the new singers the much-heralded Gabriella Besanzoni (début as Amneris in *Aida*, November 17th), disappointed expectations. Her voice was only passable, and as an actress she fell below the average. The same night two basses, Renato Zanelli (Amonasro) and Giovanni Martino (Ramfis) made their début. The former's voice was rather small, while the latter made an excellent impression. Jeanne Gordon (as Azucena in *Trovatore*, November 22d), disclosed a very beautiful voice and histrionic power of a high order. Frances Ingram (as Suzuki in *Madama Butterfly*, November 29th), and Orville Harold (as Leopold in *La Juive*, November 22d), proved valuable additions. Pierre Monteux, the principal French conductor, was succeeded by Albert Wolff (début with *Faust*, November 21st), a sincere, earnest musician concerned solely with reproducing the composer's intention. The silver anniversary of Caruso's first appearance upon the stage was the occasion of a special gala performance (March 22d), when the idolized artist sang in scenes from various operas.

The Chicago Opera Company gave a world-première, distinguished by the presence of the composer. Henri Février's *Gismonda* (January 14th), with Garden, Fontaine and Maguenat, directed by Campanini, achieved a pronounced success, due to the excellence of the text and performance rather than to the intrinsic merit of the music. The score, though lacking in originality and somewhat reminiscent, is not without merit, and contains some effective climaxes. Alfredo Catalani's *Loreley* had its American première on January 17th, with Fitziu and Dolci, under Polacco. The music, which shows strong Wagnerian influence, just falls short of being thoroughly convincing. The local première of Xavier Leroux's *Le Chemineau* (January 25th), with Gall, Maguenat and Baklanov, conducted by Hasselmans, made no impression. The fall season opened brilliantly with the American première of Italo Montemezzi's *La Nave* (November 18th), with Raisa, Dolci and Rimini, under the personal direction of the composer. The score offers tremendous climaxes and much sustained melodic beauty, although occasionally the orchestration seemed a trifle too heavy. Felix Borowski's ballet-pantomime, *Boudour* (November 25th), was an emphatic success. The music proved melodious, elegant and most expressive of the situations. For scenic splendor the production surpassed anything seen on the Chicago stage. Scarcely less gorgeous was the spectacle offered by John A. Carpenter's ballet-pantomime, *The Birthday of the Infanta* (December 23d), illustrated by music that betrayed decided futuristic tendencies in its strange harmonies and disjointed rhythms. Perhaps it was the appropriate musical setting for the grotesque plot. Of the new artists two came preceded by great reputations won in Italy. Tito Schipa (début as the Duke in *Rigoletto*, December 4th), and Edward Johnson (as Loris in *Fedora*, November 20th), an American who had won fame abroad as Edoardo di Giovanni, both justified high expectations. The other newcomers, who all were received with marked favor were Evelyn Herbert (as Mimi in *La Bohème*, November 25th), Borghild Langaard (as Amelia in *Un Ballo in Maschera*, November 21st), Carlo Galeffi (as

Renato in *Un Ballo in Maschera*, November 21st), Nina Morgana (as Lucia in *Lucia di Lammermoor*, November 22d), Dorothy Jardon (in the title-rôle of *Fedora*, November 20th). Two new conductors, Teófilo de Angelis (*Fedora*, November 20th), and Gino Marinuzzi (*Rigoletto*, December 4th), were valuable acquisitions. From January 27th–March 1st the company gave their second season in New York, which in all respects rivaled the success of the preceding year. The operas new to the metropolis were Février's *Gismonda* (January 27th), Mascagni's *Isabeau* (February 3d), Massenet's *Cléopâtre* (February 11th), Catalani's *Loreley* (February 13th), Gunsbourg's *Le Vieil Aigle* (March 1st). A most serious loss the company suffered by the death of its eminent director, Cleofonte Campanini, who died in Chicago on December 19th. Out of respect performances were suspended from December 19th–22d.

After several years of intermission New Orleans had just inaugurated, under the direction of Louis Verande, a season of French opera on a grander scale than ever attempted before, when the opera house was totally destroyed by fire on December 4th. After only two days of interruption the season was continued at the Athenaeum Concert Hall. The San Carlos Opera Company (Fortune Gallo, director), made a phenomenally successful tour of the East, Middle West and Canada. A new company, organized by the same impresario for the production of light opera in English, began its first season in New York (September 8th), with a model performance of *The Mikado*. The revivals of Sullivan's *Iolanthe* and *Patience* by the Society of American Singers (William Hinshaw, director), early in the year, attracted such large audiences that the original programme of opera comique was considerably curtailed to make room for revivals of several other Sullivan operettas, all of which proved great drawing-cards. After the close of the Metropolitan season Antonio Scotti, one of the favorite baritones, organized from among his colleagues an excellent company, with which he made a most successful tour of the principal eastern cities. Another successful venture was the Commonwealth Opera Company, with John Philip Sousa as director, which devoted its energies to the production of the better class of light opera. On April 19th Manuel Noriega began in New York the first season of Spanish opera ever inaugurated in the United States, but was compelled to disband his company on April 30th because of the very poor quality of his artists. During that brief season he produced the American premières of two operas by Amedeo Vives, *Maruxa* (April 19th), and *Los Bohemios* (April 28th). With a number of former German artists of the Metropolitan Company Otto Goritz made an ill-advised attempt to give a season of opera in German in New York, opening with Kreutzer's *Das Nachtlager in Granada* (October 20th). After the second performance, Lortzing's *Zar und Zimmermann*, the project was abandoned owing to disorder in the house and serious rioting in the streets. In the last week of the year announcement was made of the formation of the American Grand Opera Association (Richard G. Herndon, general secretary) for the purpose of producing only works of American composers with American artists exclusively. The prospectus promised the production, early in 1920,

of Cadman's *Shanewis* and Breil's *The Legend* in a tour of 40 cities.

EUROPEAN COUNTRIES

AUSTRIA. The former Hofoper of Vienna changed its name to Operntheatre, and director Hans Gregor was succeeded by Franz Schalk, one of the conductors. The 50th anniversary of the dedication of the present building was celebrated by a grand operatic and symphonic festival in May, beginning with Gluck's *Alceste*, and ending with Mahler's Eighth Symphony. Strauss, Weingartner, Kienzl, Pfitzner and Korngold appeared as conductors of their own works. Among the numerous novelties produced by far the most important was Strauss' *Die Frau ohne Schatten* (October 10th), with Mme. Jeritza, Lucy Weidt, Lotte Lehmann and Aagard Oestwig in the principal rôles, under the direction of Franz Schalk. The majority of the critics regarded the work as further proof of the composer's steadily declining inventive power. But such is Strauss' reputation that the première of any work of his is still considered an event of the first magnitude. Musically superior was Hans Pfitzner's *Palestrina* (March 1st), which scored a genuine success. The opera is unique in that it has not a single female character. Judging from the variety of critical comment, Franz Schreker's *Die Gezeichneten* must be a work of considerable importance. Felix Weingartner settled definitely in Vienna, as conductor of the Philharmonic Concerts (which he has conducted since 1908), and director of the Volksoper, where he brought out his latest operas, *Meister Andrea* and *Die Dorfschule*, both with little success. A sensation was created by the pianist Paul Wittgenstein, who had lost his right arm early in the Russian campaign. After his recovery he devoted himself to the development of his left hand with such success that he was able to give a number of recitals of standard works. Only actual sight convinced the listeners that the artist played with only one hand.

GERMANY. With the abolition of the Empire all royal and princely opera houses became nationalized, part of the former subventions being continued by the state. The reduction of income from this source, as well as the enormous cost of production, led managers to inaugurate a system of exchanging artists. The time-honored custom of appointing only noblemen as intendants of subsidized operatic institutions was likewise abolished. The former Berlin Royal Opera has become the Staatsoper, Count von Hülsen-Haeseler being succeeded as intendant by Georg Dröschner, formerly the chief stage-manager. The name of the former Munich Hofoper was changed to Nationaltheatre, Viktor Schwanneke succeeding Baron von Frankenhäusen as intendant. During the war the works of living composers of the allied countries were excluded, but immediately after the signing of the armistice the ban was lifted. The novelties produced at the various opera houses were numerous, but, with very few exceptions, quite insignificant. Innumerable symphony concerts and artists' recitals drew crowded houses, regardless of the high prices of admission. In Munich Lilli Lehmann, who in spite of her 71 years still continues to appear occasionally in recitals, created a furore. The critics were

unanimous that her art of delivery was as marvelous as ever and her voice still beautiful, although it had lost some of its power. Berlin hailed a new violin-prodigy in 14-year-old Tossy Spivakovsky (pupil of Willy Hess), who was compared to his compatriot Elman.

FRANCE. At the Opéra the regular schedule was resumed with the usual works, excepting those of Wagner. The Opéra-Comique also returned to normal condition. In June it gave the 1000th performance of *Manon*. The former Théâtre de Vaudeville was reopened in the fall as Théâtre Lyrique, entering frankly into competition with the Opéra-Comique. Director Gheusi, with a guarantee fund of 2,500,000 francs subscribed by private individuals, opened the season brilliantly with such artists as Maurice Renaud, Marthe Chenal, Genevieve Vix and Fanny Heldy, whom he secured from the Grand Opera. He also offered two prizes (10,000 and 2000 francs) for operas filling an entire evening, and two more (2000 and 500 francs) for one-act operas by French composers. G. Trarieux and M. Bravard secured control of the Théâtre Gaité-Lyrique as a home for the better class of French operettas. The season began with a series of revivals of works by Offenbach and Lecocq. A new concert-hall, Salle Marvaux, was inaugurated with the first of a series of weekly symphony concerts by an orchestra of 75 performers under M. Szyfer. During the war the Lamoureux and Colonne orchestras had been combined, but in the fall both resumed their own series of concerts, the former under Camille Chevillard, the latter under Gabriel Pierné. The Padeloup orchestra, which had been disbanded, resumed its concerts under a new conductor, Rhené-Baton. At the first three concerts he had ballots distributed to the audience to determine their attitude regarding the restoration of excerpts from Wagner. After 4983 had voted for, and 213 against, the proposition, the concert of November 8th opened with the Prelude to *Die Meistersinger*. However, the first time that Wagner was heard in Paris since the outbreak of the war was in July, when Frigara produced excerpts from the same work at one of his Concerts Populaires des Tuileries, while Chevillard had played excerpts from *Tristan*. Although in neither case had the audience been consulted, there was no protest. But no stage-performances of Wagner's works were given at any theatre during the year.

ITALY. For almost every Italian opera house the war had been a period of storm and stress, forcing many to close their doors. Even at the end of the past year operatic conditions generally were far from normal. Owing to its financial condition the famous La Scala of Milan remained closed. But a new arrangement was made with the boxholders assuring a larger revenue from that source. The period of enforced idleness was turned to good account by enlarging the stage. A new work by Zandonai had a very successful première at Pesaro (July 27th). *La Via della Finestra* is described as a work of refinement, entirely free from ultra-modern aberrations. On December 13th Mascagni's first operetta, *Si Si*, was received with enthusiasm at the Teatro Quirinale in Rome. It was written with the avowed purpose of counteracting the former immense vogue of the Viennese operettas. Great interest was shown in two performances of Monteverdi's *Orfeo* (written in 1603), given

by the Associazione degli Amici di Musica. Throughout the war Toscanini gave symphony concerts for innumerable charitable and patriotic objects. In June he directed in Milan excerpts from *Parsifal* and Beethoven's Ninth Symphony which latter had not been heard there in its entirety since 1902, when it was produced also under his direction. After two years' retirement spent in study that phenomenal boy-conductor, Willy Ferrero (now aged 13), reappeared in Rome and Naples, evoking scenes of frenzied enthusiasm by his wonderful interpretations of Beethoven and Wagner.

ENGLAND. Having been closed throughout the war the Royal Opera at Covent Garden reopened on May 12th. Mme. Melba was the only one of the old favorites. The other singers were all new to London, while quite familiar to Americans. Neil Forsyth, the former director-general, was succeeded by Percy Eales. Novelties were Mascagni's *Iris*, Massenet's *Thérèse*, De Lara's *Nail* and the Puccini triptych, *Il Tabarro*, *Suor Angelica* and *Gianni Schicchi*. An experiment of giving performances on Saturday nights at reduced prices proved highly successful. On September 21st the British Symphony Orchestra, composed exclusively of musicians who served in the army, gave its initial concert under Raymond Roze. After suspension of its activities during the war the Scottish Orchestra of Glasgow was reorganized, and began its season under Landon Ronald (November 28th). Among the many novelties introduced by Sir Henry Wood at his Promenade Concerts a symphonic poem, *Lamia*, by a young English girl, Dorothy Howell, met with such unusual favor that from its first performance (September 10th) until the end of the year it was played by five other orchestras in London, besides being produced also in other cities. Much attention was attracted by a festival of Czech-Slavic music given in May by the orchestra of the Prague National Theatre and two of the foremost Bohemian male choral societies. From among 64 manuscripts submitted the judges of the Carnegie United Kingdom Trust chose the following for publication: George Dyson, *Three Rhapsodies* for string-quartet; William H. Harris, *The Hound of Heaven* for baritone solo, chorus and orchestra; Gustav T. Holst, *The Hymn of Jesus* for chorus and orchestra; P. H. Miles, *String-sextet* in G minor; Sir C. V. Stanford, Symphony No. 5, *L'Allegro ed il Pensieroso*.

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BIOGRAPHY. Sir Frederick Bridge, *A Westminster Pilgrim* (London), an interesting combination of autobiography, reminiscences and sidelights on contemporary history of English music; Sir G. Henschel, *Musings and Memories of a Musician* (New York), an autobiography valuable for personal relations with eminent contemporaries; *The Life of Liza Lehmann* by herself (London), very intimate and interesting chiefly because of her detailed account of the genesis of her song-cycles; *John McCormack; His Own Life-Story*, edited by P. V. R. Key (Boston), entertaining and well written; J. Mas-

senet, *My Recollections*, translated by H. V. Barnett (Boston), very superficial and conventional, contains little of permanent value (The original appeared as *Souvenirs d'un Musicien*, Paris, 1912); Clara K. Rogers, *Memories of a Musical Career* (Boston), interesting as an autobiography, but more valuable as a partial record of contemporary musical history; Camille Saint-Saëns, *Musical Memories*, translated by E. G. Rich (Boston), not so much personal recollections as detached essays of permanent value on various phases of art and contemporaries. (The original was published as *Ecole Buissonnière*, Paris, 1913); Ethel Smyth, *Impressions that Remained* (2 vols., London), contains exceptionally vivid descriptions of famous contemporaries.

CRITICISM. F. H. Martens, *Violin Mastery* (New York), personal interviews with famous living masters regarding the technic of their instrument; E. Newman, *A Musical Motley* (London), a collection of essays varying in value.

HISTORY. C. A. Brown, *The Story of our National Ballads* (New York), an authentic account embodying the results of the latest investigations; H. E. Krehbiel, *More Chapters of Opera* (New York), a continuation of the author's earlier book, giving a record from 1906-18 with much valuable inside information.

MUSIC FESTIVALS. See MUSIC.

NATAL. An original province of the Union of South Africa. See SOUTH AFRICA, UNION OF.

NATHAN, BEN. British actor and theatrical proprietor, died early in May. He was born in 1857 and began as an actor in 1889. Later he devoted himself to the business side of his profession and became the manager of the London Opera House.

NATIONAL ANTHEM. See MUSIC, *General News*.

NATIONAL BANKS. Inasmuch as the national banks constitute the principal elements of the Federal Reserve System, which is treated in the article BANKS AND BANKING, the reader is referred to that article for further material on the subject. An idea of the growth of the national banking system in recent years may be gained from the following facts: The increase in resources for the five and one-half year period from January, 1914, to July, 1919, was greater than the increase which took place in the entire 40-year period prior to January, 1914; this was also true of the increase in net earnings. The total of capital, surplus, and undivided profits in July, 1919, was \$313,000,000 greater than in January 1914. Compared with the national bank failures in the 40-year period prior to 1914, the number of failures since January, 1918, is negligible. The report of the comptroller of the currency shows that on Sept. 12, 1919, there were in all 7821 national banks in the United States, with aggregate resources of \$21,615,000,000. This compares with 7728 banks on Aug. 31, 1918, which showed aggregate resources of \$18,043,000,000.

The principal items of resources were the following: Loans and discounts, \$11,085,000,000; United States Government securities, including Liberty loan bonds, Victory notes, and certificates of indebtedness, \$3,297,000,000; and other bonds and securities, \$1,807,000,000. Liabilities included the following items: Capital stock, \$1,138,000,000; surplus, \$886,000,000; undivided profits, \$415,000,000; demand deposits,

\$9,752,000,000; time deposits, \$2,921,000,000; United States deposits, \$519,000,000.

Banks which were members of the national system were distributed as follows on Sept. 12, 1919: In central reserve cities (New York, Chicago, and St. Louis), 45; in the 63 other reserve cities, 363; country banks, 7413. The distribution of country banks according to geographical divisions was as follows: New England, 395; Eastern, 1535; Southern 1520; Middle, 2035; Western, 1385; Pacific, 538; Alaska (non-member banks), 2; Hawaii (non-member banks), 3. The states having the largest number of national banks were the following: Massachusetts, 159; New York, 480; New Jersey, 202; Pennsylvania, 838; Virginia, 154; West Virginia, 119; Texas, 546; Kentucky, 129; Tennessee, 101; Ohio, 372; Indiana, 255; Illinois, 472; Michigan, 108; Wisconsin, 147; Minnesota, 309; Iowa, 355; Missouri, 134; North Dakota, 173; South Dakota, 126; Nebraska, 189; Kansas, 244; Oklahoma, 346; California, 284; Montana, 138, and Colorado, 127.

NATIONAL CATHOLIC WAR COUNCIL.

See INDUSTRIAL RECONSTRUCTION.

NATIONAL CIVIC FEDERATION. This society is for the promotion of better civic conditions in the United States. It has done much work during 1919 in spreading propaganda against Bolshevism through its official organ, *The National Civic Federation Review*, with Ralph M. Easley, as editor. A commission was sent to England, France and Italy for the purpose of studying industrial conditions in those countries. The personnel of this commission included representatives of employers, wage earners, and the public. A meeting to discuss the report of this commission was held in New York on September 8th and 9th where, among others, the following subjects were discussed: "The Shop Steward Movement," "The Democratization of Industry," "British Labor and Politics," and "Factors for Economic Change in Great Britain." On Apr. 12, 1919, Samuel Gompers addressed the Federation in New York just after his return to this country from studying labor conditions abroad. He spoke on the menace of Bolshevism. Among other speakers at the meeting was Hon. Wm. H. Taft. The Federation has also taken an active part in favoring the League of Nations, several meetings being held in various cities to discuss phases of the subject. The Woman's Department of the Federation conducted a series of weekly conferences on pertinent civic questions, such as, "Public Employment Service," "Housing," "Food Production and Conservation," and "Prison Reform." The Woman's Department has grown considerably during the last two or three years, until it is now becoming an important factor in the Federation. During the year, Mr. V. Everit Macy was forced to retire from the presidency of the Federation on account of ill health. In his place Judge Alton B. Parker was elected president. Officers in 1919 were: President, Alton B. Parker; vice-president, Samuel Gompers; treasurer, Nicholas F. Brady; and chairman executive council, Ralph M. Easley. Headquarters are maintained in the Metropolitan Tower, New York City.

NATIONAL CONCERT MANAGERS' ASSOCIATION. See MUSIC, *General News*.

NATIONAL CONFERENCE OF SOCIAL WORK. See CHARITIES.

NATIONAL FORESTS. See FORESTRY.
NATIONAL GUARD. See MILITIA.
NATIONAL LABOR PARTY. See TRADE UNIONS.

NATIONAL PARKS. See PARKS, NATIONAL.

NATIONAL SAFETY COUNCIL. The leading organization in the United States for the prevention of accidents in the industries, the streets and the homes. Founded in 1913 with 40 members, it now includes in its membership more than 15,000 factories, railroads, insurance companies, technical schools, governmental agencies, etc., employing an aggregate of more than 6,000,000 workers. The Council prints weekly news-letters, bulletins, and pamphlets to keep members informed on current events and important matters affecting the safety movement. The eighth annual Safety Congress was held in Cleveland on Oct. 1-4, 1919. Meetings of the 19 sections, representing the various industries in the United States, were held at that time. The programme for 1919 included the expansion of the work into many new fields. Officers of the Council for 1919 were: President, D. Van Schaack; secretary and chief engineer, S. J. Williams; treasurer and business manager, F. W. Pardee. Headquarters are at 168 N. Michigan Ave., Chicago.

NATIONAL WAR LABOR BOARD. The National War Labor Board was created as part of the war machinery of this country. Being purely a war emergency measure, it passed out of existence with the passing of the emergency, after an activity of 15 months. The purpose of the War Labor Board was to bring about the settlement of labor disputes by means of mediation or conciliation in all industries essential to the effective conduct of the war. A definite, clear-cut basis of principles and policies was laid down upon which the Board based all its decisions. (See preceding YEAR BOOK 1918). On Mar. 29, 1918, the Secretary of Labor appointed as members of the National War Labor Board: Messrs. Taft and Walsh, as representatives of the public; Messrs. L. A. Osborne, L. F. Loree, W. H. Vandervoort, C. E. Michael, and B. L. Worden representing the employers, and Messrs. Frank J. Hays, William L. Hutcheson, William H. Johnston, Victor A. Olander, and T. A. Rickert representing employees. These appointments were approved by the President on Apr. 8, 1918. Mr. Walsh resigned in December, and Mr. Basil M. Manley was appointed to take his place.

From Apr. 30, 1918 to May 31, 1919, the War Labor Board received 1270 cases, 25 of which were consolidated with other cases, leaving 1245 separate controversies which had to be passed upon by the board. Of these cases, 706 (57 per cent) have been referred to other agencies having primary jurisdiction or have been dismissed because of voluntary settlement, lack of jurisdiction or other reasons; 77 (6 per cent) were pending on May 31, 1919, remaining on the docket as undisposed of because of divided vote or suspension for further evidence; while in the remaining 462 cases (37 per cent) awards or findings have been handed down by the Board. In addition, 58 supplementary decisions were made in cases where action had already been taken, making a total of 520 formal awards or findings. The exact number of strikes and lock-outs averted or called off as a direct result of the Board's intervention is unknown, but the

records show at least 138 instances of this character.

There was a rapid expansion of the work of the War Labor Board during the period of actual hostilities. After the signing of the armistice, a resolution was passed providing that no new cases other than those jointly submitted would be received by the Board after Dec. 5, 1918. Altogether, there were received in the six months immediately after the armistice 423 new cases, as compared with 847 entered in the docket during the six months prior to the end of hostilities.

The awards and findings of the War Labor Board over the period from Apr. 30, 1918 to May 31, 1919 directly affected 1084 establishments employing 669,494 persons, of whom 80,271 were employees of street railway companies. These figures include only those persons specified directly in the terms of the decision. It is worthy of note that very frequently a decision in regard to one company has been accepted by other companies when in similar situations, e.g., the decision of the Board in the Bridgeport cases, (see preceding YEAR BOOK), was accepted and applied in the plants of the Remington Arms Company in other places; and that the street railway decisions have been the basis of voluntary adjustment in Philadelphia, Washington, and many other cities. Likewise, the industrial service section of the Ordnance and other branches of the War Department, as well as the Labor Adjustment Board and similar divisions and boards of other procurement divisions of the government, have used the War Labor Board principles and precedents as a manual in their own adjustments. Moreover, the conciliators of the Department of Labor, have averted many difficulties by citing the principles and precedents of the War Labor Board to the parties in controversy, and have worked out an adjustment based on these principles.

Cases were brought before the War Labor Board either by appeal from some other board, by reference from the Department of Labor, or by direct complaint. Large groups of cases were excluded from the War Labor Board, except by way of appeal, because of other processes for settlement. The shipbuilding industry set up its own Labor Adjustment Board; the Ordnance Department and other producing departments of the government had special industrial service sections; the Railroad Administration had its own method of conciliation; and the coal mining industry had its labor conditions controlled by agreement of all parties with the Fuel Administration. The cases which came to the War Labor Board on appeal from the decisions of these other boards were very few. The most important of these was the New York Harbor case, which came up on appeal from the New York Harbor Wage Adjustment Board.

A very large number of cases came by way of reference from conciliative agencies such as the Department of Labor, which had been unable to adjust the matters under discussion. Among these are found the St. Louis cases, Bridgeport cases, Worthington Pump case, Smith and Wesson case, and the Newark, N. J. machinists' cases. The remaining cases were brought through direct complaint to the Board. Of these, 12 per cent were made by employers or employers' associations; the remainder were

brought by groups of employees or, in the case of the union shops, by the union representative.

The Board was given no legal authority to execute its decisions. But during the period of the war, the powers of the procurement departments of the government—such as the War and Navy Departments—were very great, and these powers, as well as the influence of the President, were constantly used in support of the awards of this Board. The most striking cases of this kind were the Bridgeport and the Smith and Wesson cases. In the former the President told the striking employees that he would use the Federal Employment Service, and other branches of the government even to annulling their occupational claim for exemption from draft, to their disadvantage if they did not accept the Board's award. In the Smith and Wesson case, the War Department immediately took over the plant of that company when it refused to abide by the decision of the War Labor Board. The outstanding fact, however, is that, as long as active war was being prosecuted, the decisions of the War Labor Board were accepted almost without exception.

A large number of awards specifically provided for an administrator to be sent to interpret the award. There were, likewise, many requests for the assistance of such men in the interpretation and application of awards. This demand steadily increased as the number of decisions rendered grew, and it was impossible to provide efficient administrators in sufficient numbers. In total, 180 awards and findings were administered by the Department of Administration of Awards. The maximum number of administrators at the time of greatest activity was 25.

When the armistice was signed, many employers believed that the War Labor Board should be dissolved, but in January, President Wilson telegraphed from Paris, expressing his desire that it continue to function during the period of reconstruction. However, the expenses of this Board were met by a war emergency appropriation. There was no new appropriation and after June 30, 1919, the members of the Board acted without compensation. After correspondence with the Secretary of Labor, in which Secretary Wilson had expressed gratitude for the successful functioning of this board, and his belief that its duties were completed, the War Labor Board passed unanimously, on Aug. 12, 1919, a resolution deciding to dissolve. The resolution states (1) the War Labor Board is to adjourn because the emergency need is terminated, and the government has made no further provision for maintenance; (2) the War Labor Board will be ready for any call until formally dissolved by Executive Proclamation; (3) all controversies still being considered shall be transferred to the Department of Labor; (4) all records and files shall be placed in the Department of Labor and shall be open for inspection by the public.

During its 15 months of existence, the National War Labor Board handled over 1200 cases and expended \$750,000. The Bethlehem Steel employees' case was the only case which was left undecided. This was placed in the hands of an administrator.

NAUMANN, J. F. German Publicist, died at Travemunde, Germany, August 24. He had

distinguished himself during the past 25 years as a writer on blocs, and as a political leader, and during the war wrote a book which became notorious in countries of the Allies under the title of *Mitteleuropa*, in which he urged the foundation of a new holy empire, under Austro-German control, comprising not only central Europe, but extending from Antwerp to the Persian Gulf. He was born near Leipsic in 1860, studied at German universities, and was a pastor at Langeberg from 1886 to 1890. A few years later he gave up the ministry and became a leader of the left wing of the Christian Socialists, and subsequently one of the founders, and the first president of the National Socialist party. He was editor of *Die Zeit* (1896-1903), which was subsequently combined with *The Nation* and the political paper, *Hilfe* (1901-1907); he also published the political annual of his party, called *The Patria*. Among his books may be mentioned the following: *Der soziale Progress der evangelischen Kirche*, (1890); *Was heisst Christlichsozial?* (1894-96); *National-sozialer Katechismus*, (1896); *Weltpolitik und Sozialreform*, (1898); *Flotte und Reaktion*, (1899); *Demokratie und Kaiserthum*, (1900); *Kunst und Volk*, (1902); *Briefe über Religion*, (ed. ed., 1904); *Neu-deutsche Wirtschaftspolitik*, (1906); *Freiheitskämpfe*, (1911); *Geist und Glaube*, (1911). He was a member of the Reichstag from 1907 to 1912. After the defeat of Germany he entered the new Democratic party and became its president. He was one of those who opposed the most bitterly the signing of the peace. By his country he was regarded as one of the best orators of his day, and was spoken of as a probable successor of Ebert in the presidency.

NAVAL ACADEMY, UNITED STATES. See UNITED STATES NAVAL ACADEMY.

NAVAL PROGRESS. During the past year the naval powers of the world have been chiefly concerned in a reduction of expenses by cutting down the personnel, laying up unnecessary ships, discarding antiquated ones, and stopping or reducing new construction. Those vessels which had become antiquated and those which were only called into service by the exigencies of the war have been relegated to retirement, to the scrap-heap, or (in the case of former merchant craft) returned to their original service. Germany has been reduced to the status of a third rate naval power. Great Britain is completing only such vessels as were very far advanced in construction. France and Italy are simply repairing existing ships—and only the best of these are receiving much attention. The United States and Japan are the only nations that are adding to their fleet; neither was hard hit like Great Britain, France, and Italy by the frightful expenses of the war.

BATTLE OF JUTLAND. The battle of Jutland has attracted new interest during the year through the published statements of Admiral Lord Jellicoe, of Admiral Tirpitz, and of Captain Persius. The really decisive character of the action is now thoroughly understood. The German ships were badly injured and their crews decimated. The ships were saved from sinking only by their heavy armor, by excellent subdivision of the hulls, and the proximity of their home base. The British losses were 6014 killed and drowned and 674 wounded. Of the fatal casualties about 500 were due to gun fire and

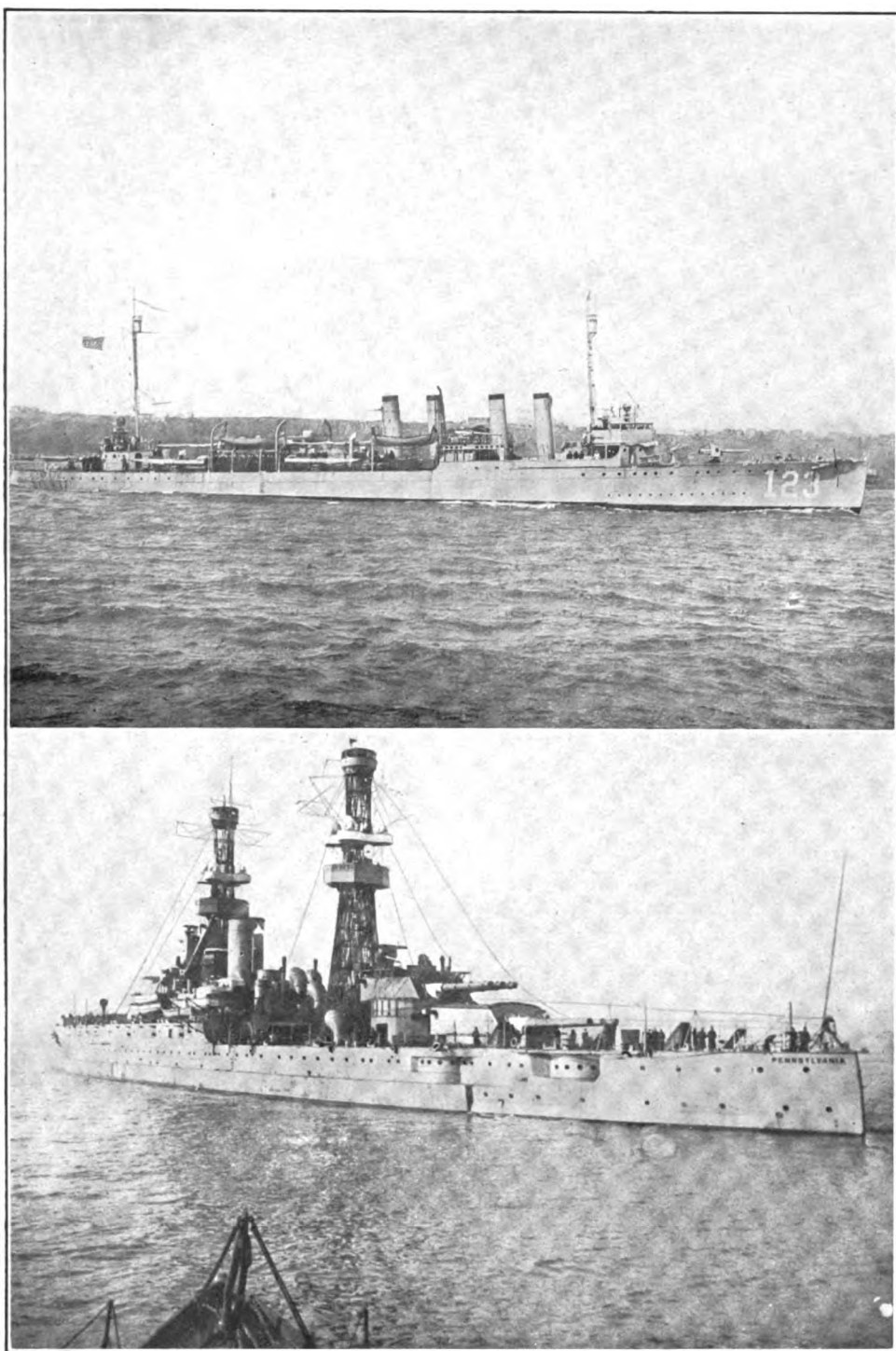
5500 to the sinking of 3 battle cruisers, 2 armored cruisers, 2 flotilla leaders, and 6 destroyers. The German losses are stated in Berlin as 3076 of which about 2000 were drowned and the remainder killed or wounded by gunfire. The fleet was *hors de combat*. The battleship *Pommern* was sunk by a torpedo. The *Koenig* was struck about 15 times and so badly damaged that she sank by the head until her bow was only 6½ feet above water, thereby imprisoning the crew of the forward torpedo tube until she was placed in dock on June 5. The *Grosser Kurfurst* was damaged in hull and engines by shells and torpedo. The *Markgraf* was badly damaged by a torpedo. The *Oldenburg* was hit by a shell which killed 11 and wounded about 12, mostly officers on the bridge. The *Ostfriesland* struck a mine which tore a large hole in her starboard side; she was assisted into port by salvaging vessels. The *Schlesien* was injured in a collision with the sinking *Pommern*. The Schleswig-Holstein was so badly hurt that her repairs took several weeks. Of the battle cruisers, the *Luetzow* received at least 40 hits by heavy shell and was twice torpedoed during the night attacks. She was abandoned and sunk to prevent her falling into British hands. The *Derfflinger* was so badly torn by shells that she had to be reconstructed, a large quantity of guns and armor designed for the *Hindenburg* being used. The *Moltke* was hit by three large shells and was under repairs until August. The *Von der Tann* had one turret completely put out of action and another rendered virtually useless. Of the light cruisers the *Elbing* was so completely disabled that she was scuttled to avoid capture. The *Rostock*, badly damaged by gunfire, was blown up to avoid capture. The *Wiesbaden* was completely wrecked by gunfire and finally sunk by a torpedo; only one of her crew survived. The *Frauenlob*, wrecked and set on fire by shells, was also torpedoed by an enemy destroyer or cruiser and sunk; only eight of her crew escaped. Five destroyers were sunk and several others so disabled that they had to be towed into port. Aside from the drowned in the *Queen Mary* and *Indefatigable*, Beatty's ships had considerably over 500 killed and wounded in the battle cruisers and fifth battle squadron. No one was killed on any battleship of the main British fleet and only nine were wounded—all on the *Colossus*. Jellicoe's losses were in the *Invincible*, *Defence*, *Black Prince*, and the flotillas. The serious injuries of the German ships and the enforced retreat to Wilhelmshaven, where several months were required to effect repairs, were a terrible setback to the German high commands. The attempt of the Kaiser and his advisers to characterize the battle as a German victory only deceived those at a distance and deceived them but for a time. As far as the personnel of the navy was concerned its spirit was broken and its morale destroyed; from that time onward, hopelessness spread and the attempts at reorganization and strengthening of the fleet only led to discontent that undermined discipline and ended in mutiny. The failure of the submarine campaign which, instead of bringing England to terms, brought the United States into the war, and which was so dangerous that few escaped a third trip to sea, made matters steadily worse, so that at the end of hostilities the German fleet was well-

nigh innocuous no matter what its force in ships.

AIRCRAFT. At sea as on land aircraft have become most important for scouting and other purposes. The seaplane differs from the land machine in having the car shaped like a boat so that it can alight on the water, from which its floats and hydroplanes permit it to rise without difficulty. In the United States and other navies all large ships will hereafter carry at least one seaplane, while special vessels carrying 10 to 25 planes will accompany large naval forces. (See **BATTLESHIPS**, etc.). The airship is also highly regarded as a naval auxiliary but the practicable manner of its use awaits further development.

ORDNANCE. There are no new developments in naval ordnance since the British brought out their short 18-inch for special service and the Germans a short light 6-inch for arming submarines. The British, in 1915, built a short light 12-inch gun which they mounted on *Submarine M-1*. It was intended for use at the Dardanelles.

NAVAL WAR DEVICES, RECENT. The *depth charge*, at first consisting of a fused container holding 25 pounds of high explosive and thrown by hand, has been developed in several ways. It is now enormously larger and fitted with a fuse that explodes it at a predesigned depth by the hydrostatic pressure. Guns and launching apparatus are used to project the bombs, and the largest sizes are of 600 pounds or more. The name *hydrophone* has been applied to any instrument for listening to sounds coming through water. Such instruments, of many different types, were used during the war in the endeavor to define the direction of a moving submarine. No great success attended these efforts until the *Walser Hydrophone* (the invention of a French naval officer) appeared. This instrument, too complicated to describe here, is based upon the refraction of sound waves. In its final form it was first used in service during March, 1918. Thereafter it assisted greatly in the submarine hunt. Among the many important devices developed during the war is the *paravane*. This consists of two "otters" towed by wire ropes, one at each side of the bow, the inner end of each rope being attached to the stem of the ship at the forefoot, a dozen feet or more below water. The "otter" is a torpedo-shaped device fitted with saw-like jaws (for cutting mine-anchor cables) and a depth regulator operating rudders that keep it at a designed depth below the surface. When the ship goes ahead, other rudders on the "otters" make them swing out from the side until they stretch taut their towing ropes at an angle of about 45° with the course. Any mine which does not squarely strike the stem of the ship is caught by one of the towing ropes pressing against the anchor line. The latter slides along the towing rope until it catches in the "otter's" jaws where it is promptly cut. The mine then rises to the surface clear of the ship and is easily destroyed. *Paravanes* saved many ships from being struck during the war and incidentally revealed the location of several new and unknown mine fields. The *S-course* is a later development of zigzag steering which was designed to upset the calculations of a U-boat that wished to launch a torpedo. This form of course is obtained by a continuously



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LATE TYPES OF UNITED STATES WAR SHIPS
Above: Destroyer 123. Below: U. S. S. Pennsylvania

moving lubber's point on the compass, the movement being controlled by a cam that may be changed from time to time to give an *S-course* of different characteristics. As the moving lubber's point follows the law impressed upon it by the cam, the computation of course, distance, and position at any time can be made automatically.

NAVIES OF THE WORLD: RELATIVE STRENGTH IN SHIPS. In the following table, no pre-dreadnought battleships are included and of fast light cruisers only those which are less than 15 years old. On account of the difficulty of determination of figures in connection with submarines and destroyers, the numbers of these vessels and their tonnages are taken from U. S. official reports which appeared in the Spring of 1919. Many that are recorded as building have since been completed and, in the case of Great Britain, a large number have been condemned for ultimate sale as not worth further maintenance, while other nations are reducing their fleets somewhat less drastically. The French and Italians have stopped all work on dreadnoughts under construction: these vessels were projected before the war but have hardly been commenced and none are far advanced. The United States and Japan are the only countries doing much building. When the battle cruisers and battleships now under construction are completed the United States navy will be equal to the present fleet of Great Britain except as regards light cruisers, while Japan will have left France and Italy far behind.

kind is to be retained unless fit to take its place in the first line of its type. This rule eliminates all armored cruisers, all predreadnought battleships (except two which approach the dreadnought type, carrying 4 12-inch and 10 9.2-inch guns), all light cruisers of low speed and ineffective design, all old destroyers which are too small to be fully seaworthy and too slow to be efficient. The rule is also being applied to vessels of auxiliary type where selection is more difficult. The result is that the British navy will become a highly efficient organization per ton of vessels maintained in service. The British naval estimates for 1919-20 were £149,200,000, of which £68,000,000 was for shipbuilding, repairs, and maintenance. A personnel of 280,000 is provided for. When the reductions in material and personnel are complete it is hoped that the cost of maintaining the navy will be less than £100,000,000—possibly as low as £75,000,000. One item, which will always be a large one, is the pay of officers and men. The rate of pay has been enormously increased—more than doubled in some instances—so that the pay of many officers (especially those of the higher grades), is higher than that of similar ranks of our own service. The total losses of the British naval forces in war operations were as follows: Killed (including drowned), 2061 officers and 20,197 men; wounded, 813 officers and 4081 men; missing, 15 officers and eight men.

UNITED STATES NAVY. After the battleships and battle cruisers now under construction are completed, the navy will be equal to the present

NAVIES OF THE GREAT POWERS—SHIPS BUILT AND BUILDING

	<i>Great Britain</i>		<i>United States</i>		<i>Japan</i>		<i>France</i>		<i>Italy</i>	
SHIPS BUILT:	No.	Tons	No.	Tons	No.	Tons	No.	Tons	No.	Tons
Battleships	35	845,490	14	377,450	6	164,600	7	163,409	6	130,593
Battle cruisers	9	208,600	0	.....	4	110,000	0	.....	0	.....
Light cruisers	a 88	444,150	3	10,250	7	24,864	1	2,421	14	31,682
Destroyers	b 369	350,020	105	109,060	65	37,177	65	37,505	47	84,950
Submarines	c 140	155,000	84	32,176	16	28,414	58	22,026	78	21,645
Total	641	2,003,260	206	528,936	98	340,055	131	325,361	145	218,870
SHIPS BUILDING:										
Battleships	0	.....	12	454,200	4	128,000	e 6	158,150	e 4	117,800
Battle cruisers	0	.....	6	261,000	2	80,000	0	.....	0	.....
Light cruisers	0	.....	10	71,000	4	21,400	3	13,500	0	.....
Destroyers	d 115	141,855	237	286,779	14	(1)	1	890	16	19,435
Submarines	d 79	66,871	83	68,694	6	(1)	8	(1)	11	3,399
	194	208,726	348	1,141,673	43	244,100	18	172,540	31	140,634
Battleships of a near dreadnought type which will be kept in service	2	33,000	0	.....	1	19,350	5	94,138	0	.....

a Some not completed. On a few construction work has stopped.

b Nearly one-half are to be condemned and broken up.

c Some are to be condemned and broken up.

d Some are completed; some will not be built at present.

e Construction work stopped.

BRITISH NAVY. No new construction work is in hand for the British navy. A large number of cruisers, destroyers, and submarines were in hand at the end of the war; those very far advanced will be completed; work on the others has been stopped. Four new type battleships of the *Hood* class were contemplated. The *Hood* is completed: the others, which had hardly been commenced, will not be built and the material has been sold. Up to July 1, 1919, about 150 British ships had been condemned for sale and the work is still going on. No vessel of any

naval force of Great Britain except as regards light cruisers in which the U. S. navy is very deficient. The possession of a great navy seems to be regarded as imperative. In the late war, although the British navy was enormously superior to the German it was insufficient to effect all desired results. The political disquiet now prevailing in Europe may engender any result and the United States evidently wishes to be in shape to secure its own peace and safety and by the constant exhibition of adequate force to cause any nation or combination of nations to

think twice before attacking us or interfering with the rights of our people. The naval appropriation bill for 1919-20 is \$616,000,000. No new construction is authorized but \$133,000,000 is provided for continuing work on the vessels authorized in the programme of 1916. After Jan. 1, 1920, the enlisted force of the navy is fixed at 170,000 men, which number may be increased by the President to 191,000 if in his judgment a sufficient emergency exists. The new organization of the active forces afloat consists of an Atlantic battle fleet of 17 battleships and a Pacific battle fleet of 15, each with squadrons of cruisers, destroyers, auxiliaries, etc. The Asiatic fleet consists of cruisers and auxiliary vessels only. Other special squadrons and detachments are formed for special services. All battleships of the predreadnought type, except those of the *Connecticut* and *New Jersey* classes, are to be placed in reserve and it is presumed that the ships of these two classes will follow the others as fast as they are replaced by dreadnoughts. There are now building for the navy: the battleships *Tennessee* and *California* (32,300 tons, 85 and 95 per cent completed), *Colorado*, *Maryland*, *Washington*, and *West Virginia* (32,600 tons, 35 to 70 per cent completed), *South Dakota*, *Indiana*, *Montana*, *North Carolina*, *Iowa*, *Massachusetts* (43,200 tons, 0 to 10 per cent completed); the battle cruisers *Lexington*, *Constellation*, *Saratoga*, *Ranger*, *Constitution*, *United States* (43,500 tons, 0 to 10 per cent completed); 10 light cruisers Nos. 4 to 13 (7,100 tons, 5 to 40 per cent completed). On Oct. 1, 1919, there were also under construction 3 fuel ships, 2 gunboats, 1 hospital ship, 2 ammunition ships, 1 repair ship, 1 destroyer tender, 136 destroyers, 58 submarines, 6 mine sweepers, 14 seagoing tugs, 7 harbor tugs, 11 oil tankers, and 8 eagle boats. Many of these have since been completed. There were 197 vessels in the navy at the time of our entry into the war and 2003 at its close. The personnel of the navy on April 6, 1917, was: Navy, 65,777; marine corps, 15,627. The corresponding figures on Nov. 11, 1918, were: Navy, 497,030; marine corps, 78,017. At the close of hostilities there were 373 United States naval vessels operating in European waters, consisting of 8 battleships, 70 destroyers, 120 submarine chasers, 12 submarines, and 63 patrol and mine vessels of various types.

GERMAN NAVY. The German navy has been reduced to a negligible naval force by the results of the war. Not only has she, by the terms of the armistice, been compelled to surrender every ship of serious importance but the organization, morale, and discipline of the fleet has been so completely destroyed that it will take a generation to reconstruct any sort of efficient force. (See note on the battle of Jutland on a preceding page.) On June 21, 1919, by a concerted action, the German crews on the vessels interned at Scapa Flow sank their vessels. This was but a further evidence of the total lack of honor and plighted word which has distinguished the Germans during the war. The terms of the peace treaty require that the armed naval forces of Germany shall not exceed the following:—6 battleships of the *Deutschland* or *Lothringen* types (both predreadnoughts of 13,000 tons, carrying 4 11-inch guns), 6 light cruisers, 12 destroyers, and 12 torpedo boats (or an equal number of similar craft); and the naval forces of Germany shall not contain a single submarine. A list of

the vessels surrendered for internment is given in the YEAR BOOK for 1918.

JAPANESE NAVY. As may be seen in the table of ships of great naval powers, the Japanese navy is steadily advancing in power both absolutely and relatively. It is now in third place as regards either ships built, or ships built and building, having far distanced both France and Italy. Financially, Japan has not been injured by the war; indeed, its commerce, industries, and wealth have greatly increased. Of the 4 battleships given in the table as building 2 are launched, and 2 are commenced, while the 2 battle cruisers of 40,000 tons are about to be or have been laid down. Of the new light cruisers of 7200 tons, two are certainly building, and possibly 5 are in hand; 2 others of 3500 tons are nearly ready for service. Of the 14 destroyers of unknown displacement, 10 were recently ordered and were probably laid down in 1919; 5 are first class boats and 5 are second class.

FRENCH NAVY. The financial embarrassments caused by the war have impelled the government to call a halt on practically all shipbuilding. Three light cruisers (*Lamotte-Piquet* class) of about 4500 tons are under construction; whether work on them is to be stopped is uncertain. The great cost of powerful naval vessels has repeatedly caused the French to seek some cheap substitute for the battleship—the torpedoboat, the commerce destroyer, the submarine. When the futility of the substitute was seen, the navy built useless ships like the armored cruisers. Before the war France had laid down 5 battleships of about 25,000 tons and projected the laying down of 4 more. Only one of the latter was laid down and work upon this and upon the first 5 was stopped soon after the outbreak of hostilities and has not been resumed.

ITALIAN NAVY. As in other navies of the European allies, retrenchment is sought in all directions. In 1913-14, Italy expected to lay down 4 battleships of 28,000 to 30,000 tons. It is believed that some work was done on all of them; 1 was launched. Work on all is reported stopped; the 1 which was launched may eventually be completed. The dreadnought battleship *Leonardo da Vinci* (22,340 tons) which was sunk by an internal explosion during the war has been raised and will be repaired.

RUSSIAN NAVY. The break-up of the Russian navy is complete. After murdering most of the officers and a large percentage of the men, the Bolsheviks attempted to operate some of the vessels—others they gave to their German friends. Nearly all have now been captured by the Allies or sunk.

AUSTRIAN NAVY. The breaking up of the Austrian Empire has of course left the remains of its fleet without a flag and without a country. Neither the new Austria nor the new Hungary has any seacoast. The principal vessels of the Austrian fleet are now in Italian hands and may fall to Italy, be destroyed, or be given to the Jugo-Slav state.

NEW MINOR NAVIES. Finland, Poland, and Jugo-Slavia are said to be organizing naval forces but nothing definite of importance has yet been achieved.

NAVY. See NAVAL PROGRESS.

NAYAE. See ANTHROPOLOGY.

NEBRASKA. POPULATION. The population of the State in 1910 was 1,192,214, and July 1,

1919, it was estimated to be 1,300,627, a gain of 12,000 during the twelvemonth.

AGRICULTURE. The following table is compiled from a report of the Federal Department of Agriculture.

Crop	Year	Acreage	Prod. Bu.	Value
Corn	1919	7,030,000	184,186,000	\$224,707,000
	1918	6,954,000	123,086,000	157,550,000
Oats	1919	2,133,000	69,962,000	45,475,000
	1918	2,531,000	56,188,000	36,522,000
Wheat	1919	4,384,000	60,675,000	122,564,000
	1918	3,666,000	41,218,000	81,190,000
Hay	1919	1,769,000	4,299,000	60,186,000
	1918	1,701,000	4,281,000	40,953,000
Potatoes	1919	115,000	6,325,000	12,018,000
	1918	121,000	10,406,000	12,279,000

a Tons.

TRANSPORTATION. The total railway mileage of the State on Dec. 31, 1919, was 8392. The railroads having the longest mileage were: Chicago, Burlington, and Quincy, 3601; Union Pacific, 2104; Chicago and Northwestern, 1306. Very little railroad construction was done during the year.

FINANCE. According to the treasurer's report, the total receipts for the fiscal year 1918 were \$4,980,973. The disbursements for the year amounted to \$4,012,279. The balance at the beginning of the year was \$483,186, and at the end of the year \$1,451,880. The State has no bonded debt.

EDUCATION. The total school population in 1918 was 387,394. The enrollment in the public schools was 292,362, with an average daily attendance of 219,246. The number of teachers, male and female, was 12,697, and their average salary was \$64.45 a month.

POLITICS AND GOVERNMENT. The regular session of the legislature was held, January-March. Its principal work was the passage of a so-called "code" bill, which consolidates the several boards and commissions under the governor, with secretaries forming his "cabinet." The purpose is to unify the administration of the state's business, doing away with duplications and overlapping jurisdictions. Provisions were also made for the constitutional convention, ordered by the referendum. This convention met on December 5th, organized, named its committees and took a recess until January 6th. The legislature also enacted several amendments to the banking laws, the "blue sky" law and the workmen's compensation law. A bill to provide for the erection of a new State capitol building, levying a tax to pay for the same, and naming a commission with the governor as chairman to receive and adopt plans, was also passed.

A special session of the legislature was called in October, to grant to Douglas county the right to issue bonds for the purpose of repairing the county court house, which was damaged by fire during a riot on the night of September 28th. At that time a mob surrounded the court house, situated in the centre of the Omaha downtown district, and set the interior of the building on fire to force the sheriff to turn over a negro prisoner held in the county jail, which is on the roof of the building. The total damage wrought by the fire is estimated at \$898,000. While the sheriff was removing the prisoners from the jail quarters, that had become untenable, the negro was secured by the mob, hung, shot, and his body afterwards cremated. During the progress of the riot, Mayor Edward P.

Smith of Omaha was captured by the mob and badly beaten, narrowly escaping being hanged, his rescue being effected by a group of citizens.

STATE OFFICERS. Governor, Samuel R. McKelvie; Lieutenant-Governor, P. A. Barrows; Secretary of State, D. M. Amsberry; Attorney-General, Clarence A. Davis; Auditor, George W. Marsh; Treasurer, D. B. Cropsey; Commissioner of Public Lands, Dan Swanson; Railway Commissioner, H. G. Taylor—all Republicans.

JUDICIARY. Supreme Court: Chief Justice, A. M. Morrissey; Associate Justices, Charles B. Letton, William B. Rose, George W. Day, Albert J. Cornish, James R. Dean, Chester H. Aldrich. See MINIMUM WAGE.

NEBRASKA, UNIVERSITY OF. A co-educational State institution of learning, founded at Lincoln, Neb., in 1869. In the fall of 1918 there were 3234 students and 329 members of the faculty; a large proportion of the attendance was incident to the establishment of a unit of the Student Army Training Corps. Volumes in library, 137,868. The total revenue of the university for the year 1918 was \$3,654,874. Chancellor, Samuel Avery, Ph.D. See AGRICULTURAL EDUCATION.

NECROLOGY. The following list contains the names of notable persons who died in 1919. Articles will be found in the YEAR BOOK in their proper alphabetical order on those whose names are mentioned below without other text.

Aaronsohn, Aaron. Agriculturist, died May 15 near Boulogne, France, in a fall from an aeroplane. He was technical adviser of the United States Department of Agriculture. He was born at Haifa, Palestine.

Abbott, Charles Conrad.

Abbott, Bessie. American stage soprano, died in New York, February 9. She was born at Riverside, N. Y., in 1878. Having begun her career as a successful singer on the vaudeville stage, she soon found her way into grand opera, making her debut in Paris, in 1901. From 1906-9 she sang at the Metropolitan Opera House, and after that again in Europe. Upon her marriage to the sculptor T. Waldo Story, in 1912, she retired from the stage.

Acland, Sir Thomas Dyke.

Adler, Leopold. German theatre director. He was director of the court theatre of Brunswick.

Akashi, Motojiro.

Alcock, Sir John.

Alden, Henry Mills.

Altenburg, Peter. German author. He was among the most original of the modern school.

Alves, F. de P. Rodrigues. Ex-President of Brazil, died January 15. He was born in 1849.

Anderson, Malcolm Playfair. Naturalist and explorer, died February 21 in Oakland, Cal. He was well known as an ornithologist, and had made investigations in China and Japan, where he was in charge of the Duke of Bedford Explorations in eastern Asia. He graduated at Stanford University.

Anderson, W. Mc. Former Member of Parliament, died February 25. He was a member of the British Labor Party.

Andréev or Andreyev, Leonid Nikolaevitch.

Andreiev, Vassili. Russian musician, died in Russia, March 28 (of starvation). Having perfected the national balalaika, he organized in Petrograd an orchestra exclusively of balalaikas and domras. In 1910 he visited the United States, meeting with such success that he made several subsequent tours.

Angeles, Felipe.

Araujo, Paula Silva. Brazilian bacteriologist. He was well known for his microscopic researches in biology, and was the author of *Vaccine Therapy of Bronchial Asthma*.

Arch, Joseph.

Aronson, Rudolph. American composer, died February 4 in New York City. He was born April 8, 1856. He was a well-known theatre manager and projector; inaugurated roof gardens in the United States; and composed over 150 pieces for orchestra.

Ashbrook, Robert Thomas Flower.

Astor, William Waldorf.

Atterbury, Sir Frederick. British lawyer and politician. He was controller of the Stationery Office at

the time of his death. He wrote on a variety of economic subjects.

Ayres, Brown. University president, died January 28. He was born in Memphis, Tenn., May 25, 1856, and was professor of physics and dean of the School of Technology at Tulane University from 1880 to 1904, and after that president of the University of Tennessee.

Azopardi, Sir Vincent Frendo. Chief Justice of Malta, died June 9. He was born January 6, 1865.

Baccarini, Dr. P. Director of the Botanic Gardens at Firenze, died July 24.

Bacon, Robert.

Baillie, Sir Duncan. Indian Civil Service official, died August 30. He was born November 7, 1856, and held important offices in the Indian Civil Service during the greater part of his life.

Baird, John Wallace.

Baker, Frank. Anatomist, died September 30, 1918. He was for many years superintendent of the National Zoological Park in Washington, D. C.

Ball, Tom. British international golfer, born at Hoylake, England, in 1882. He represented England in the international matches of 1909, 1910, 1912, and 1913.

Ballard, Aaron Edward.

Bancroft, Claude Keith. Government botanist of British Guiana. He was born in 1885 and studied at Harrison College, Barbados, and Trinity College, Cambridge. He was botanist in the Federated Malay States 1910-13, when he became government botanist of British Guiana. He wrote various articles on a wide range of botanical subjects for scientific publications.

Barajas, Carlos. Mexican physician, and professor of anatomy in the University of Mexico.

Bardeleben, Dr. K. H. von. Anatomist. He was born in 1850. He had been professor of anatomy in the University of Jena, and wrote a series of works on anatomy and evolution.

Barney, Samuel Stebbins.

Baron, Barclay Josiah. British physician and Lord-Mayor of Bristol, died June 7. He was a lecturer at the Bristol Medical School and was also on the medical staff of Edinburgh University.

Barr, Amelia Edith.

Barrell, Joseph.

Barroso, Sabino. Former president of the Brazilian Chamber of Deputies, died June 14, in Rio de Janeiro.

Barry, Thomas Henry.

Bartholomew, William H. Engraver, died in Brooklyn, N. Y., September 2. He was born in 1856.

Bashford, James Whitford.

Bass, Joseph Parker.

Battle, Kemp Plummer.

Baum, Lyman Frank.

Baumard, Monsignor. Rector of the Catholic University of Lille, died in Gruson, France; death reported early in December. He was born August 4, 1828, and was rector of the above-mentioned institution from 1888 to 1898. He was author of a number of religious writings dealing with controversies, biography, and history.

Bayma, T. Bacteriologist. He was a well-known physician of Sao Paulo, Brazil, and director of the Bacteriological Institute there. He was born in 1864.

Beck, Sir J. H. Meiring. South African state official, died May 18. He was born in Cape Province in 1855. From 1916 to the time of his death he was Minister of Posts and Telegraphs in the Union of South Africa.

Becker, George Ferdinand.

Beeching, Henry Charles. British ecclesiastic and author, died February 25. He was Canon of Westminster Abbey, 1902-11, and after 1911 Dean of Norwich. He was the author of a great variety of theological and literary works, including many studies and editions of English poets.

Bell, James D.

Bell, James Franklin.

Bell, James Montgomery.

Beradi, Marquis Giuseppe. Died November 20 in Rome, Italy.

Beresford, Admiral Charles William de La Poer.

Bertie, Francis Leveson, First Baron of Thame.

Bielitz, Martin. German lyric poet.

Billy, Edouard. Died July 11. He was a former representative of the French Republic in the United States. He was born in 1865.

Bissell, Herbert Porter.

Bissell, William Grosvenor.

Blake, Clarence John.

Blakelock, Ralph Albert.

Blakelee, Commander E. G. United States navy commander, died February 27 in London. He was born in 1888.

Blanchard, Raphael.

Bliss, Edwin Munsell.

Blossom, H. Martin, Jr.

Boisdeffre, Raoul François Charles le Mouton de.

Borland, William Patterson.

Bösendorfer, Ludwig. Head of the famous Vienna firm of piano manufacturers, died in May in Vienna. He was born in 1835. In 1872 he opened the Konzertsaal Bösendorfer, one of the foremost recital halls of Vienna. For forty years he was a director of the Gesellschaft der Musikfreunde.

Bosman, David. American railway financier, died October 24 in Rutherford, N. J. He was born at Brooklyn, N. Y., in 1864. He began his railway career as a clerk on the Erie Railroad in 1887, and rose rapidly till he became secretary of all the Erie lines, and in 1916 first vice-president. In 1910-11 he was mayor of Rutherford.

Botha, Louis.

Bourne, Frederick Gilbert.

Brackett, Walter M.

Bradley, Rev. Dr. F. H. Mayflower descendant, Civil War veteran, last Duryea Zouave officer, died in Brooklyn, N. Y., August 19. He was born in 1838.

Braham, John Joseph.

Braid, Andrew. Hydrographic engineer. He was born December 20, 1846, in Kirkcaldy, Scotland. At the time of his death he was hydrographic and geodetic engineer of the United States Geographical Survey, and chairman of the United States Geographic Board.

Brainard, Owen.

Brenet, Michel (real name Marie Bobillier). Eminent French musicologist, died in January, in Paris. She was born in Lunéville, April 12, 1858. From 1871 she lived in Paris, devoting herself to research work regarding the earlier periods of French music. Her scholarly books and numerous contributions to French and Italian periodicals are important.

Brown, Daniel Russell.

Brown, John. Moderator of the General Assembly of the Church of Scotland in 1916, died in Edinburgh, February 20. He was born in Irvine, Scotland, April 5, 1850, and was educated at Edinburgh University. He was the author of *Imperialism and Church Union* (1916), and various papers and addresses.

Bruch, Clara. The wife of the noted composer Max Bruch, died August 27 in Berlin. Before her marriage, in 1881, she had made a considerable reputation as a concert-singer.

Brunner, Sir John Tomlinson. British manufacturer, died July 1. He was born February 8, 1842, and in 1873 established at Northwich a manufactory of alkali which became the largest in the world. He was distinguished by his liberal gifts for public purposes.

Buehler, William George.

Bureau, Dr. Louis Edouard. Botanist, well known as the professor of botany at the Paris Museum of Natural History. He was born in 1831.

Burgees, George Farmer.

Burnett, John Lawson.

Bush, Thomas Cromwell. British clergyman, the last direct descendant of Oliver Cromwell, died at the beginning of March in Devon, England. He was born about 1851 and held benefices during several years in Somerset and Gloucestershire.

Busse, Karl. German poet. He was among the most popular of the lyric poets.

Call, Edward Payson.

Calthrop, Sir Guy.

Campanini, Cleofonte.

Camphor, Alexander Priestly.

Capplani, Luisa.

Carnegie, Andrew.

Carp, Pierre P. Former premier of Rumania, died June 29 in Jassy. He was born in 1837.

Carpenter, Rolla Clinton.

Carr, Clark Ezra.

Carter, Franklin.

Carter, Brig.-Gen. J. L. American army officer, died February 16 in Clinton, Mass. He was born in 1849.

Carus, Paul.

Castle, Capt. Guy W. S. Commander of transport *George Washington*, died August 13 in Brest, France.

Cellere, B. Macchi di.

Chadwick, French Ensor.

Chadwyck-Healy, Sir Charles E. H. British state official, died October 5. He was born August 26, 1845, and at the time of his death was Chancellor of the Diocese of Exeter.

Chase, George Colby.

Cheesman, Dr. Timothy Matlack. Bacteriologist, died in Garrison, N. Y., February 28. He was born in 1853. He was instructor in bacteriology at Columbia University from 1888 to 1889 and was afterwards a trustee of the university.

Clairin, Jules Georges Victor.

Clark, George Crawford.

Clifford, Mary.

Clover, Richardson.

Cobb, Darius.

Cochrane, Francis.

Coggia, M. Astronomer, died January 15. He was

born in 1849. For more than fifty years he served in the Marseilles Observatory.

Colchester, Baron Reginald Charles Edward Abbot. Coleman, Fanny. British comedy actress, died March 2. Her last appearance was in *Lady Wyndermere's Fan* in 1904. She was born in 1833.

Compton-Rickett, Sir Joseph. British writer and state official, died July 30. He was born February 13, 1847. From 1916 to the time of his death he was Paymaster-General. In 1917 he served as Charity Commissioner. He was a Member of Parliament after 1906. He wrote stories pertaining to religion, and was a contributor to the periodicals.

Constantino, Florencio.

Cook, Sir Edward Tyas.

Cooper, Charles Lawrence.

Cottenham, K. O. E. P. Fourth Earl of. Died in London, April 22. He was educated at Eaton and Oxford, and was a large landed proprietor.

Courcel, Baron Alphonse de. Former French ambassador at London, died June 17 in Paris. He was born in 1835.

Cowles, Edward.

Cowles, Julia Darrow.

Cowley, Henry Arthur Mornington Wellesley, Third Earl of. British nobleman and large landed proprietor, died January 15 in Chippenham, England. He was born January 14, 1866.

Cox, John Charles. British antiquarian, died February 28. He published a very large number of works on British antiquities, beginning in 1876 and continuing down to a short time before his death.

Cox, Kenyon.

Crawford, Donald. British official, died January 1. He was born in 1837, and was a Member of Parliament after 1885, and held important offices in the administration of Scotland.

Crawford, Sir Richard.

Crawford, Sir Richard Frederick. British diplomat, died August 6. He was born in June, 1863. He was adviser of the Turkish ministry of finance after 1911, and was also Commissioner of the Customs.

Crookes, Sir William.

Cudahy, Patrick.

Cuddeback, William Herman.

Cunningham, William. British economist and ecclesiast, died June 10. He was born December 29, 1849, and in 1907 was made arch-deacon of Ely. He wrote *The Growth of English Industry and Commerce* in two volumes, and many other economic works, including *The Use and Abuse of Money*, *Progress of Capitalism*, etc.

Dallas, W. D.

Daniel, Charles H. O. Provost of Worcester College, Oxford, died September 6. He was born in 1837, and was for many years examiner and lecturer at Oxford. He wrote poems and works of literary criticism.

Davidson, Sir James Mackenzie.

Davis, Robert Chapman. Botanist. He was born in 1837. He had been a lecturer on botany in the University of Edinburgh, and later was appointed a captain in the medical corps of the British army.

Davis, Walter Gould.

Davis, William James.

Deakin, Alfred.

Deane, Sir Henry Bagnave.

De Booy, Theodore.

Deussen, Paul. German educator. He was a professor in the University of Kiel, and an authority on Schopenhauer and Indian philosophy.

Deutch de la Meurth, Henry.

Develle, Jules.

Devery, William S.

Diaz, Pedro. Former Vice-President of Panama, died March 8.

Dickson, Joseph Benjamin.

Diemer, Louis J.

Dinenson, Jacob. Jewish author, died September 2 at his home near Warsaw, Poland. He was born in 1856, and was educated at a Jewish college. He wrote many children's books. During the World War he became known as "the father of the war orphans of Poland."

Dittenhoefer, Abram Jesse.

Doherty, Hugh L. Tennis player, died August 21 in London.

Dohn, Hedwig. German writer on woman's rights. About forty years ago she distinguished herself by her feminist writings.

Donkin, Richard S. Director of the Suez Canal, died February 5. He was born in 1836.

Doolittle, Charles Leander.

Door, Anton.

Dougherty, L. S. Biologist, died February 28. He was professor of biology and was author of *Principles of Economic Zoology*.

Dowling, Frank L. President of Manhattan Bor-

ough, died September 27 in New York. He was born in 1865.

Drew, Sidney. Actor, died April 9 in New York. He was born in 1864 in Philadelphia, and was a brother of John Drew and an uncle of Ethel, Lionel, and John Barrymore. An opportunity to play the part of Clarence Dexter in *Our Boarding House* led him to take up a stage career. He was increasingly successful, especially in light comedy, and with his wife, Lucille McVey, he also produced many plays for the motion picture theatre.

Dumars, F. R. Ex-Secretary of the Metropolitan Museum of Art, died in New York City, September 24.

Duneka, F. A. Publisher, died January 24 in Summit, N. J. He was born in 1859.

Dunlap, H. J. Diplomat, died October 26 in Kankakee, Ill. He was born February 8, 1841. He was a newspaper publisher and editor, 1875-90; consul at Breslau, 1890-1; commercial agent at Fürth, Bavaria, 1901-8; and consul at Cologne after June, 1895.

Dunlop, Sir Nathaniel.

Dutton, Samuel Train.

Duveen, Henry. Art dealer, died January 15 in New York. He was born in 1854.

Duvencek, Frank.

Eady, Baron Charles Swinfen.

Eagan, Charles Patrick.

Edmunds, George Franklin.

Edwards, Matilda Betham.

Edwards, Vinal N.

Egan, Patrick.

Eglinton and Winton, G. A. M., Earl of. British peer and large landed proprietor, died August 10. He was born February 23, 1848.

Eisner, Kurt.

Elkins, George W.

Ellyson, James Taylor.

Emery, Edward K.

Emmet, Thomas Addis. Physician, died March 1 in New York City. He was born in 1828. He was a specialist in women's diseases, introducing new operations and methods of treatment, and wrote *Principles and Practice of Gynecology*, and other medical works and papers.

Ende, Herwegh von.

Epstein, Richard.

Erlanger, Camille. French composer, died in Paris, April 24. He was born there May 25, 1863. He wrote symphonic music and ten operas, none of which have found their way across the ocean.

Escreet, C. E. British ecclesiastic, died March 3. He was born February 20, 1852. He was Rector of Woolwich from 1892 to 1909, and at the time of his death was Arch-Deacon of Lewisham.

Estopinal, Albert.

Fairfax, Sir James Reading. Australian newspaper proprietor, died March 28. He was born October 17, 1834. He engaged in newspaper work in his youth and down to the time of his death, and was proprietor of important Sydney journals. He was president, trustee, etc., of many important charitable and art institutions.

Farlow, William Gilson.

Farneti, R. Plant pathologist of the University of Pavia, died January 18.

Fell, David Newlin.

Festetics, Count Alex. Died in April in Budapest.

Field, Roswell Martin.

Figgis, John Neville. British church historian, died April 13. He was born October 2, 1866, and wrote extensively on church history, his later works including *The Fellowship of Mystery* (1914), *Some Defects in English Religion* (1916), and *The Will to Freedom* (1917).

Figueron, General F. Former President of San Salvador, died June 18.

Fischer, Emil.

Fitzroy, Lord Frederick. Soldier and former Member of Parliament, died February 13 in Balcombe, England. He was born April 4, 1823.

Fletcher, Horace.

Fletcher, William Alfred Littledale.

Forget, Sir Rodolphe.

Poster, G. Carey. Physicist, died February 9. He was born in 1835 and was professor of physics at the University College in London from 1865 to 1898, afterwards becoming principal.

Fox, John, Jr.

Franco, Dr. Manuel. President of Paraguay, died June 5.

Fraser, Sir Andrew Henderson Leith.

Fraser, John. Former Auditor-General of Canada, died at Daytona, Fla., February 28. He was born December 13, 1852; entered the civil service in 1875 and was made Auditor-General in 1903.

Frazier, Commodore Reah.

Frey, Charles Lang.

- Frick, Henry Clay.
Fukushima, General Baron. Died February 18 in Tokio. He was born in 1854.
- Furley, Sir John. One of the founders of the Red Cross, died September 27. He was born March 19, 1836. He rendered extraordinary services during his long life in many wars, beginning with the Franco-Prussian War in 1870. He served in important capacities on various commissions for the relief of war victims, and published a number of works pertaining to his war experiences and of the Red Cross.
- Gallegos, Salvador. Former Minister of State, San Salvador, died July 13.
- García, Charles. Consul-General of Guatemala, died in Boston, Mass., August 30.
- Gardiner, Colonel Asa Bird.
- Garrigan, Philip Joseph.
- Gaul, Gilbert William.
- Genung, John Franklin.
- Gibson, H. Graeme.
- Gawtry, Harrison E. Capitalist, died January 29 in New York. He was born in 1840. He was a trustee or director of a number of large gas and electric lighting companies.
- Godman, F. Ducane. British ornithologist, sportsman, and traveler, died in London, February 19. He was born in 1834. He was a trustee of the British Museum, and was well known as a naturalist. He wrote *The Natural History of the Azores* (1870) and *A Treatise on the Zoology of Central America* (1916).
- Gomez, R. S. He was professor of internal pathology and descriptive anatomy at the University of Buenos Aires.
- Goodwin, Nathaniel Carl.
- Gould, Nathaniel. British sporting novelist, died January 2. He was born at Manchester, England, December 21, 1857, and began publishing in 1891 a variety of novels pertaining to the turf. This was followed by a long series of other novels on sporting subjects, which shortly before his death numbered about 130.
- Graninger, Charles Albert. An American organist and choral conductor, died in Pittsburgh, April 24. He was born in 1867. For seventeen years he was professor of organ at the Cincinnati College of Music. For the last eight years he had lived in Pittsburgh.
- Graves, Herbert C.
- Green, Gabriel Marcus.
- Greer, David Hummell.
- Gregg, David.
- Groeber, Adolf.
- Grossmith, Weedon. British artist and actor, died June 14. He was the son of the late George Grossmith, lecturer and journalist. He exhibited at the Academy in his youth, but devoted himself to the theatre after 1885, becoming a manager, besides appearing in important rôles himself, and he published a number of plays.
- Guirola, Rafael. Former Secretary of State of Salvador, died April 24, in San Salvador.
- Gulliver, Frederic Putnam.
- Guntton, George. Editor, died September 11 in New York City. He was born in 1847 in Cambridgeshire, England. He was president of the Institute of Social Economics, editor of *Guntton's Magazine*, and author of several books and many monographs on economic and sociological subjects.
- Haase, Hugo.
- Habibullah, Khan.
- Haeseler, Gottlieb von.
- Hale, William Henry.
- Halford, Lieutenant William. U. S. naval officer, died February 7 in Oakland, Cal. He was born in 1842. In 1870, with four companions, he sailed 2000 miles in a small gig to bring aid to the crew of the stranded *U. S. S. Saginaw* at Ocean Island in the Pacific, for which Congress awarded him the Medal of Honor.
- Hall, Pauline.
- Hallam, Alfred.
- Hallaëpan, François. French dermatologist, died in March, at 77 years of age.
- Halsey, Francis Whiting.
- Hamilton, Allan McLane.
- Hammerstein, Oscar.
- Hampson, Sir Robert Alfred. Newspaper proprietor, died July 8. He was proprietor of an important Liverpool journal, and was Lord Mayor of Liverpool 1903-4.
- Handley, William White.
- Hanna, William John. Canadian food controller, died March 20 in Augusta, Ga. He was born October 13, 1862, in Adelaide, Ont. He was elected to parliament in 1902, and from 1905 to 1916 was provincial secretary and registrar of Ontario, Canada.
- Harben, William Nathaniel.
- Harcourt, Vernon, Augustus George. British chemist, died August 23. He was born December 24, 1834.
- He wrote extensively for scientific journals and invented two standards for measuring the intensity of light. He was vice-president of the Chemical Society.
- Harris, Robert.
- Harrison, Thomas Skelton.
- Hartmann, Cardinal Felix von.
- Hazen, John Vose.
- Hearst, Mrs. Phoebe Apperson.
- Hegeman, John Rogers.
- Heinrich, Julia.
- Heinz, Henry John.
- Helm, Harvey.
- Henderson, Charles English.
- Henry, Edward Lamson.
- Herández, José. Venezuelan physician, died June 20 in Caracas as the result of an automobile accident. He was one of the best-known physicians of the country, and was celebrated for his scientific researches.
- Herbert, Hilary Abner.
- Hertling, Count von.
- Hicks, Edward Lee. Bishop of Lincoln after 1910, died August 14. He was born September 18, 1843, and wrote a number of works on Greek inscriptions and many other subjects.
- Higgins, Edward.
- Higginson, Henry Lee.
- Hills-Johnes, Lieut. Sir James.
- Hime, Sir Albert Henry. British engineer and South African official, died September 13. He was born August 29, 1842, and distinguished himself for engineering services in Bermuda; afterwards was Prime Minister of Natal.
- Hinds, Asher Crosby.
- Hinkson, Henry Albert. Irish author and lawyer, died January 11. He wrote a number of novels and many short stories. His writings include *O'Grady of Trinity* (1896) and *Gentleman Jack* (1913).
- Hitchcock, Charles Henry.
- Hoch, August. Psychiatrist, died December 20 in San Francisco. He was born April 20, 1868, in Basel, Switzerland, and came to America in 1887; studied at Johns Hopkins and at German universities, and was director of the Psychiatric Institute of New York State Hospitals for the Insane at Ward's Island, New York, from 1910 to 1917.
- Hodge, Henry Wilson.
- Hodges, George.
- Hohenzollern, Charlotte, Duchess. Sister of ex-Kaiser Wilhelm, died October 3 in Baden-Baden, Germany. She was born in 1860.
- Holden, Sir Edwin.
- Hollyer, Samuel.
- Holm, I. C. L. Sanitarian. He was born in 1846. He was prominent in the development of the sanitarium system of Norway.
- Holt, W. H. Former U. S. Judge in Porto Rico, died March 6 near Louisville, Ky. He was born in 1842. He was a judge of the Kentucky Court of Appeals, 1884-93, and the first district judge of Porto Rico, 1900-4.
- Holtzendorff, Henning von. Grand Admiral of the German Fleet, died June 8 in Berlin. He was born in 1853.
- Homer, William J.
- Hood, John.
- Hopkins, Cyril George.
- Hopkins, Tighe.
- Hoss, Elijah Embree.
- Houssaye, H. Former director of the Havas Agency in Paris, France, died September 24. He was born in 1848.
- Huntington, Charles Pratt.
- Huntoon, Benjamin B. Educator of the blind, died August 9 in Louisville, Ky. He was born in 1836.
- Hussein Bey, Abdul Hak. Diplomat, died February 19 in Atlantic City, N. J. He was former secretary, and for a long time Charge, of the Turkish Embassy in Washington, and had been counselor of the Turkish Embassy in London and Minister at The Hague.
- Iglesias, Pablo. Leader of the Spanish Socialists, died June 13 in Madrid. He was a member of the Spanish Chamber of Deputies, elected as a Socialist.
- Ingersoll, Edwin Henry. Chemist. He had been engaged in the Bureau of Animal Industry of the United States Department of Agriculture.
- Ingham, Edward A. Sanitarian. He was instructor in the Massachusetts Institute of Technology. He died in California from influenza which he contracted while combatting the disease.
- Inouye, Enryo. Buddhist philosopher, died July 17 in Tokio.
- Inverclyde, Sir James Cleland Burns. Prominent British shipbuilder, died August 16. He was born February 14, 1864. After 1899 he was president of the Chamber of Shipping of the United Kingdom.
- Irving, Henry Brodribb.
- Isvolsky, M.

Itagaki, Count Taisuke. Japanese politician, died July 23 in Tokio. He was born in 1837.

Jacobi, Abraham.

Jacobs, Charles M.

Jardine, Sir John. Indian civil servant and author, died April 26. He was born September 27, 1844. In 1885 he became the Judge of the High Court of Bombay. He wrote a number of works on Indian law.

Jefferson, Joseph.

Johnson, John E., Jr. Civil engineer, died April 4 in Scarsdale, N. Y. He was born in 1860. He was the author of mining and metallurgical books, and was a director of the American Institute of Mining and Metallurgical Engineers.

Johnson, Thomas Moore.

Jones, George Heber.

Judson, Frederick Newton.

Juilliard, Augusta D.

Julien, Alexis Anastay.

Kearney, Edward Francis.

Kellicott, William Erskine.

Kemal, Ismail Bey. Former President of the Provisional Government of Albania, died January 27. He was born in 1843.

Kieckhefer, Ferdinand A. W.

King, Leonard William. British Assyriologist, died August 23. He was born December 8, 1869, and wrote a variety of important works on Egyptian and Assyrian archaeology. After 1913 he was keeper of Egyptian and Assyrian antiquities at the British Museum.

Kiralfy, Imre. Play producer. He was the organizer of spectacles at various international exhibitions, held in London 1908 to 1914, and was known throughout Europe and in the United States. He was author and designer of many celebrated spectacle pieces, including *Nero* (1888-91), *Columbus*, *America*, *India*, *Our Naval Victories*, *Relief of the Legation in China*, etc.

Klein, Manuel.

Knorre, Walter. German astronomer. He was for many years astronomer at the Berlin Observatory. He was born 1841.

Kobert, R. Chemist and physician. He was professor of pharmacology, physiological chemistry and history of medicine at the University of Rostock. He was regarded as an authority on physiological chemistry and *materia medica*. He was born in 1854.

Kramarz, Dr. Karel.

Kung, Duke. Seventy-fourth lineal descendant of Confucius, died November 16 in Peking, China.

Kunze, Richard Ernest.

Laking, Sir Guy Francis.

Lamb, Edwin Travis.

Lambe, Lawrence M. M. Paleontologist. He was born in 1864, and was on the staff of the Canadian Geological Survey.

Lamy, Etienne.

Landauer, Gustav. German writer. He was prominent in the eighties.

Laressan, Jean Marie Antoinede.

Lau, Hans Emil. Danish astronomer.

Laurier, Sir Wilfred.

Lawrence, Isaac. Lawyer, died March 21, in Delphine, Mont. He was born in 1828. He was prominent in the Democratic party in Rhode Island; was consular agent in Cobourg, 1862, and in Port Hope, Can., 1872-6; and president of the American Tariff Reform League.

Lawrence, Sir Joseph. Chairman of the International Linotype Company, died October 24 in London. He was born September 23, 1848. He was one of the chief pioneers of the Manchester Ship Canal; was a member of Parliament 1901-06, and a Conservative in politics.

Lawrence, Thomas James. British writer on international law, died August 16. He was born April 29, 1849, and for 25 years was lecturer on international law at the naval colleges of Greenwich and Portsmouth. He wrote treatises on international law which passed through many editions, being regarded as an authority on the subject.

Lee, James Wideman.

Lefroy, George Alfred.

Lethbridge, Sir Roper. Indian Civil Servant and writer, died February 15. He was born December 23, 1840, and was for many years in the Indian Civil Service. He was a Member of Parliament from 1885 to 1892. He wrote *The Golden Book of India; a History of India* and many other educational and political works.

Leonecavallo, Ruggiero.

Leroux, Xavier Henri Napoleon.

Levy, Alfred.

Levy, Louis Edward.

Liapounoff, A. M. Russian mathematician. He was professor of applied mathematics at the Academy of Petrograd.

Liebknecht, Karl.

Lilly, William Samuel. British lawyer and author, died August 29. He was born July 10, 1840. After 1874 he was secretary to the Catholic Union of Great Britain. He wrote works on a large variety of subjects, including religion, politics, literature, and history, one of the largest being *The New France*.

Lima, Sir Bertram.

Lindau, Paul.

Lloyd, Charles Harford.

Londonderry, Theresa Susy Helen.

Lubin, David.

Luckes, Eva. British hospital nurse, died February 16. She was born in 1859. She became matron of the London Hospital in 1880, and did excellent work in improving the condition of the nurses, and in the introduction of other reforms. She was the author of *General Nursing* which had passed through nine editions in 1914.

Luco, Ramon Barros. President of Chile, 1910-15, died September 20 in Santiago, Chile.

Ludington, Marshall Independence.

Luna, Palagio B. Vice-President of the Argentine Republic.

Lunger, John B. Life insurance official, died June 12 in New York. He was born at Asbury, N. J. April 5, 1864, and entered the insurance business in Newark as a clerk in 1880. He rose rapidly in the Prudential company and was afterwards an official in the Travelers and New York Life Insurance Companies. From 1912 to the time of his death he was vice-president of the Equitable Life Insurance Company.

Macalister, Alexander. British anatomist, died September 2. He was born April 9, 1844, and was professor of anatomy at Cambridge after 1883. He wrote a text-book of human anatomy in 1889 besides works on animal morphology, etc.

McCaughy, Sir Samuel.

McCormick, Robert Sanderson.

McDonald, Sir Andrew. British Official, died July 15. He was born in 1836, and was Lord Provost of Edinburgh, 1894-97.

MacDonald, Sir John Hay Athole.

McDougal, Sir James Patten. British official, died March 7. He was born May 29, 1849. He was keeper of the records of Scotland and after 1909 was Registrar-General for Scotland.

MacGregor, Sir William. Australian official, died July 3. He was born in Scotland in 1847, and was governor of several British dependencies including Queensland in Australia.

Mackenzie, John Edward Nutt.

Mackenzie, Montague Muir.

Maclay, Edgar Stanton.

Maclay, James.

McLean, Thomas Chalmers.

Mahaffy, Sir John.

Maria Theresa. Former Queen of Bavaria, died February 3 in Munich. She was born in 1849.

Marix, Adolph.

Martin, Thomas Staples.

Mason, John.

Matchet, Charles H.

Maury, Mytton. Educator, died August 5 in Hastings, N. Y. He was born in 1839.

Mercier, Charles Arthur. British expert in mental diseases, died September 2. He was born in 1852, and wrote successfully on psychology and insanity, including a text-book on insanity.

Meyer, Kuno.

Michelham, Lord Herbert Stern.

Miller, Andrew.

Millet, René. Former resident-general of Tunis. His death was announced December 1. He lectured at Harvard University in 1905.

Mithouard, Adrien. President of the Paris Municipal Council, died March 28. He had been president of the Council for a number of years. In 1917 he officially accepted the Lincoln statue, and in December, 1918, welcomed President Wilson on behalf of the city of Paris.

Monier, Fernand. Former president of the Paris Court of Appeals, died December 14 in Paris. He appeared prominently in the newspapers in November, 1917, when he was condemned for misconduct in office in connection with the case of Bolo Pasha, and was dismissed from office.

Monier, General. Military governor of Paris, died February 13. He was appointed military governor of the city in the fall of 1918.

Moon, Reuben Osborne.

Morales, Manuel. Diplomat, of San Salvador, died December 7. He was one of the best known public men in Central American affairs. He had served as minister of foreign affairs in San Salvador, and had been minister to the United States.

Moreira, Santos. A well-known Brazilian pediatricist. He was director of *Medicina Clínica*.

Morimura, Baron I. Japanese banker, died September 11 in Tokio. He was born in 1830.

Mowbray, Sir Edmund George Lionel. British clergyman, died February 2 in Reading, England. He was born June 26, 1859, in Mortimer, educated at Eton and Oxford, and was ordained priest in 1884. He held a number of important livings, including the vicarage of Saint Michael, and All Angels, Brighton, 1909-1917.

Mulliner, Mrs. G. S. President of the Camp Fire Girls of America, died June 28 in New York City. She was born in 1872.

Murphy, William Martin. Irish industrial leader and financier, died June 26. He was born Dec. 29, 1844, and was prominent in railway management in Great Britain and Ireland. He founded *The Irish Independent* (newspaper) in 1905, and took an important part in opposing the syndicalist strikes in 1913.

Murray, Charles Fairfax. British art collector and connoisseur, died January 25. He was born in 1850.

Murray, Sir James Wolfe.

Nakajuma, Taizo. Psychologist, died September 29 in Tokio, Japan. He was born in 1866.

Napier, Mark Francis. British Member of Parliament, and president of the Reuter Company, died Aug. 19 in London, England. He was born Jan. 21, 1852, and was educated at Cambridge.

Nathan, Ben.

Naumann, J. F.

Nervo, Amado. Mexican Minister to Argentina and Uruguay, died May 24 in Montevideo.

Norelli, Ermete.

Noyes, Henry Erastus.

Noyes, LaVerne W.

Oakes, Sir Augustus Henry. British librarian and compiler, died August 17. He was born Nov. 2, 1839, and became librarian and keeper of the papers under the government in 1896. He compiled editions of treaties and other state papers.

Ocaña, Dr. J. Gómez. Professor of physiology at the University of Madrid. He was a life senator. He was born in 1860.

O'Leary, Arthur.

Oliver, George Tener.

Oppenheim, Lassa Francis Lawrence. British authority on international law, died March 7. He was born in Germany Mar. 30, 1858, and was educated there. He entered the faculty of London University in 1895. He wrote many treatises on international law in Germany and later in England, some of the latest being *The Science of International Law* (1908), and *The Panama Canal Conflict* (1913).

Ormonde, James E. W. T. B., Lord. British peer, died October 26 in Dublin. He was born Oct. 5, 1844, and was one of the great landowners in Ireland.

Osler, Sir William.

Palgrave, Sir Robert Harry Inglis.

Pardee, Don Albert.

Parker, Horatio William.

Patterson, Andrew Melville. British anatomist, died February 13. He was born Mar. 7, 1862, educated at Edinburgh University, and for many years a dean of the medical faculty at the University of Liverpool. He wrote various text books on anatomy, including a manual of embryology, and for several years before his death was in the inspection service in the field of military orthopedics.

Patterson, John Edward.

Patti, Adelina.

Paul, T. de J. Venezuelan diplomat, died March 3 in Guatemala City.

Payne, William Morton.

Pears, Sir Edwin.

Peck, John Hudson.

Peckover, Alexander.

Penna, Jose. Died March 29 in Buenos Aires. He was professor of epidemic diseases at the University of Buenos Aires.

Penthièvre, Duke of. Died July 18 in Paris, France. He was born in 1845, the son of Francis, Prince of Joinville, son of the Duke of Nemours, and of Princess Frances of Braganza.

Peytral, Paul.

Pickering, Edward Charles.

Pigott, Jas. P. Former Congressman, died July 1 in New Haven. He was born in 1853. He was a delegate to the Democratic National Conventions of 1888 and 1900, and a Representative in Congress, 1893-95.

Pillsbury, John Elliott.

Piñero, H. G. He was professor of psychology at the school of medicine at the University of Buenos Aires.

Pirsson, Louis Valentine.

Pittcock, Henry Lewis.

Pixley, Frank.

Planchon, Ferman. Spanish minister of Finance, died February 5 in Madrid.

Plaza, Victoriano de la. Former President of Argentina, died October 1 in Buenos Aires.

Plummer, Col. Stanley. Former postmaster of the U. S. Senate, died February 13 in Atlantic City, N. J. He was formerly connected with the Civil Service Bureau in Washington. His home was in Dexter, Me.

Pollak, Gustav.

Porter, Sir Andrew Marshall. British jurist, died January 9. He was born June 27, 1837, and was attorney-general for Ireland and afterwards Master of the Rolls.

Povani, Guido. Tenor. Died February 7 in Milan. He was born in 1857.

Poynter, Sir Edward John.

Preuschen, Hermione von. German poet, painter and traveler.

Pryor, Roger Atkinson.

Quigg, Lemuel E.

Quincy, Josiah.

Ragdale, James Willard.

Randolph, Robert Lee.

Rayleigh, Baron John William Strutt.

Reade, Philip.

Redwood, Sir Borereton.

Reed, Edward M. Patron of the Yale Observatory, died October 26.

Reed, Verner Zevola.

Renoir, (Pierre) Auguste.

Retter, Homer P.

Retsius, Gustaff. Swedish anthropologist, died July 23 in Stockholm. He was born in 1842, the son of a family distinguished in natural history and anatomy.

He was educated at Upsala. He became professor of histology at Stockholm in 1876, and of anatomy in 1889.

Reynolds, Stephen.

Rice, Capt. Emery. Commander of the *Mongolia*, died January 4 in New York. He was born in 1878.

Richards, Charles Brinkerhoff.

Riemann, Hugo.

Ritchie, Lady Anne Isabella.

Rockwell, Edwin A. Art and musical critic, died March 8. He was born in 1847, and had been connected with the *Brooklyn Eagle* for a quarter of a century.

Rogers, Cephas Brainerd.

Roll, Alfred Philippe.

Roosevelt, Theodore.

Rossetti, William Michael.

Rossell, William Treat.

Rothschild, Baron Lambert.

Row, R. W. H. Zoölogist, died February 16. He was born in 1885, and was lecturer in zoölogy at Kings College.

Russell, George William Erskine.

Sabine, Wallace Clement Ware.

Sage, John Charles.

Sakata, Jujir.

Saloman, William.

Sanderson, Sir Percy.

Sargeant, Frederick.

Sawyer, Sir James.

Saxe-Meinungen, Charlotte, Duchess of.

Schaeffer, Nathan C.

Schauffer, Adolph Frederick.

Schermerhorn, Frederick Augustus.

Schirmer, Rudolph E.

Schloesing, J. J. T. Agricultural chemist, died February 8. He was born in 1825, and was for many years professor of agricultural chemistry in the Paris Conservatory of Arts and Trades.

Schmidlapp, Jacob Godfrey.

Schreiner, William Philip.

Schwendener, S. Honorary president of the German Botanical Society, died May 27.

Scott-Gatty, Sir Alfred.

Sethbridge, Sir Roper.

Shadwell, Charles Lancelot. British educator and scholar, died February 13. He was born Dec. 16, 1840, and was Provost of Oriel College from 1905 to 1914.

He wrote various articles on the subject of religion and on university administration history.

Shaw, Anna H.

Shaw, J. Byam.

Shedlock, John South.

Sheffield, William Paine.

Sheldon, George Rumsey.

Sherwood, Elgar Harmon.

Shonts, Theodore Perry.

Sidgreaves, Walter.

Siemens, von. Electrician. Head of the Siemens Halske Companies, died October 16 in Arona, Switzerland.

Simons, James.

Simpson, Albert B.
 Sinclair, Angus. Editor and engineer, died January 2 in Milburn, N. J. He was born in 1841 in Scotland; wrote *Twentieth Century Locomotives*; *History of the Development of the Locomotive Engine* (1907) and other works of a similar nature.
 Slifer, Hiram Joseph.
 Smith, Sir Charles Abercrombie. South African official, died May 24. He was born May 12, 1834, and held important positions in the government of Cape Colony from 1866 to 1910. Among other offices he held were, chairman of the Civil Service Examining Committee, 1887 to 1910, and controller and auditor-general of Cape Colony, 1875-1903.
 Smith, Herbert H.
 Sowapa Pongsi, Queen Dowager.
 Spooner, John Coit.
 Stefanic, Dr. Milan.
 Steinway, Charles Herman.
 Stengel, Baron H. G. L. von. Former Secretary of the Treasury, died May 6 in Berlin. He was born in 1837.
 Stephens, Henry Morse.
 Sterling, Sir Edward Charles. Australian naturalist, died March 20. He was born in South Australia Sept. 8, 1848, and wrote a large variety of books and articles on the fauna of Australia.
 Stevenson, John K. Former Congressman, died June 27 in Amsterdam, N. Y.
 Stewart, Julius L.
 Stewart-Smith, Sir Dudley. British jurist, died May 9. He wrote *The Law of Stock Companies*, and was Vice-Chancellor of Lancaster in 1912.
 Stirling, Sir Edward C.
 Stoddard, Tappan.
 Storey, George A. British painter. Member of the Royal Academy, died July 29. He was born in 1834.
 Story, Julian.
 Straughn, M. N. Chemist, died January 9 in Porto Rico. He was engaged in the Bureau of Chemistry in Washington.
 Streafeld, Richard Alexander.
 Stretch, Herbert L. W. British ecclesiastic, died April 19. He was born in 1865. After holding important pastorates he became arch-deacon of Nottingham in 1913, and was made Bishop of Newcastle in 1915.
 Strong, Henry A. American capitalist, died July 26 in Rochester, N. Y. He was prominent in the manufacture of kodaks with George Eastman, and became President of the Eastman Kodak Company.
 Sturges, A. L. E. de. Dutch Minister, died May 5 in Paris. He was born in 1841.
 Sturge, William Allen. British ethnologist. He was born in 1850. He was the author of papers on prehistoric ethnology.
 Sultz, Charles August.
 Sunehisa, Prince. Died April 23 in Tokyo. He was born in 1882.
 Swift, Sir Mark.
 Sykes, Sir Mark. British soldier and author, died February 16. He was born Mar. 16, 1879, and saw service in South Africa, becoming Lieutenant-Colonel in 1911. He wrote a number of works pertaining to Mohammedanism, and was a Unionist Member of Parliament.
 Sylvia, Eloi.
 Tanner, Harry. Died January 8 at the Santiago County Hospital. Known as the "great faster" from his experiment of going without food for 40 days. At the time of his death he was reported to be 91 years of age.
 Tailhade, Laurent.
 Tawney, James A.
 Taylor, Franklin.
 Tempeltev, Eduard von. German dramatist.
 Terauchi, Count Siki.
 Thacher, Thomas. Lawyer, died July 30 at Watch Hill, R. I. He was born in New Haven, Conn., May 30, 1850, and graduated at Yale in 1871. He practiced law in New York after 1875, and was a lecturer on corporations at the Yale Law School after 1889.
 Thayer, Stephen Henry.
 Thomas, Chauncey.
 Thomas, Colvin.
 Thompson, Dwinel French.
 Thompson, Joseph B.
 Tierney, Michael J. Former judge, died September 2. He was born Jan. 16, 1864. He was admitted to the bar in 1885, and was for eight years Judge of the Court of Special Sessions at New Rochelle, N. Y.
 Tilford, Henry Morgan.
 Towner, Daniel Brink.
 Trail, J. W. H.
 Traubel, Horace.
 Trinius, August. German writer. He was a native of Thuringia, and was known as a writer on Thuringian topics.

Trumbull, Jonathan.
 Tukushima, Baron Yasumasa.
 Turner, Charles Yardley.
 Tynan, Mrs. Caroline. "Caroline Whyte," New York City actress, wife of Brandon Tynan, died Dec. 27, 1918. She was born in 1890.
 Upton, George Putnam.
 Van Dyke, Carl Chester.
 Van Hamm, Caleb Marsh.
 Van Loan, Charles Emmet.
 Van Tuyl, George Casey, Jr.
 Van Zandt, Marie.
 Very, Samuel Williams.
 Walker, Charlotte (Mrs. Edward de Komlosy).
 Walker, Mary E.
 Wallace, Sir David Mackenzie.
 Wallace, James N.
 Ward, Arthur William.
 Ward, Herbert. Sculptor, and explorer, died August 6. He was born in 1863.
 Warren, Henry Pitt.
 Waterlow, Sir Ernest Albert.
 Watts, W. Marshall. Educator, died January 13. He was born in 1844. While teaching science in the English schools he made important researches in spectroscopy. He wrote *A School Flora*, *Introduction to the Study of Analysis*, *The Index of Spectra*.
 Weir, Julian Alden.
 Wellman, Samuel T. Former president of the American Society of Mechanical Engineers, died July 11. He was born Feb. 5, 1847. He was well known in the iron and steel industry of the Great Lakes.
 Werner, Adolph. Teacher, died August 26 in New York City. He was born in 1838 in Frankfort-on-the-main, Germany. He was educated at the Free Academy, now the College of the City of New York, where later he was professor of German, 1861-1915, when he retired.
 West, George Stephen.
 Weston, Theodore.
 Weyl, Walter Edward.
 White, Laura Bradstreet. Educator. She was head of the Science Department of the Girls' High School in Boston after 1875, and was well known as a teacher and as an authority on chemistry.
 Wiechmann, Ferdinand G.
 Wilcox, Ella Wheeler.
 Wilde, Henry. English physicist, died March 29. He was born in 1833. He made a number of important electrical inventions.
 Williams, Arthur Llewellyn.
 Wilson, John Moulder.
 Wise, Otto Irving.
 Wood, Daniel Joseph.
 Woolworth, Frank W.
 Worthen, George Carlton. Botanist, died April 10. He was born in 1871. He specialized in economic botany, and was a member of the Bussey Institute at Harvard.
 Wyndham, Sir Charles.
 Yates, Fred.
 Young, Bennett Henderson.
 Young, Richard Whitehead.
 Young, Sophie. Curator of botany, died March 5. For eight years preceding her death she had been curator and instructor in botany in the University of Texas.
 Zeisler, Joseph.
 Zelaya, J. S. Former President of Nicaragua, died May 17 in New York. He was born in 1854.
 Zimmerman, Max Georg. German lecturer on art history at the University of Bonn.

NEGRI SEMBILAN, THE (NINE STATES).
 A federation of states composing a state in the Federated Malay States (q.v.).

NEO-MALTHUSIAN LEAGUES, FEDERATION OF. See BIRTH CONTROL.

NEPHRITIS. See BRIGHT'S DISEASE.

NERVO, AMADO. Mexican author. See SPANISH LITERATURE.

NETHERLANDS, THE (or HOLLAND). A kingdom of central Europe, on the North Sea, in latitude 50° 46'-53° 34' north, and longitude 3° 22'-7° east, comprising 11 provinces. Capital, the Hague.

AREA AND POPULATION. Total area including the rivers of Zeeland and South Holland, the Dollart, the Zuider Zee, and the Wadden (shallows on the shores of Friesland and Groningen extending to the Dollart), 40,828.71 square kilometers (15,764 square miles), as based on low-

tide planimetric calculation. The area by provinces and the population according to the communal population lists of Dec. 31, 1916, and Dec. 31, 1917, are shown in the following table:

	Sq. km.	1916	1917
North Brabant	4,973	699,838	714,973
Gelderland	5,024	707,898	723,437
South Holland	2,391	1,599,164	1,636,097
North Holland	2,762	1,244,499	1,270,808
Zeeland	1,832	243,698	245,933
Utrecht	1,363	320,913	327,192
Friesland	3,220	380,526	384,363
Overijssel	3,354	426,010	431,757
Groningen	2,284	355,154	358,663
Drenthe	2,262	196,505	200,951
Limburg	2,195	409,022	430,409

Land area, about 12,580. Density, 535 per square mile. On Dec. 31, 1917, 3,969,670 or 59.03 per cent of the total population was classed as rural. The population of the 10 largest cities on Dec. 1, 1917, was as follows:

Amsterdam	640,993	Haarlem	74,816
Rotterdam	500,221	Arnhem	70,664
The Hague	344,636	Leiden	60,817
Utrecht	135,368	Nimeguen	68,479
Groningen	87,063	Tilburg	59,519

In 1917 there were 49,344 marriages, 173,112 births (3803 illegitimate), 87,273 deaths, and 6788 still births. Emigrants in 1917 numbered 867.

PRODUCTION. Area under wheat in 1918, 122,059 acres; production, 957,000 quarters; rye, 470,849 acres and 3,212,687 quarters; barley, 51,992 acres and 485,687 quarters; oats, 385,372 acres and 4,201,437 quarters; flax, 30,675 acres and 3617 hundredweights; sugar beets, 114,262 acres and 1,458,000 tons; potatoes, 432,722 acres. Live stock (census of August, 1918): Cattle, 2,048,872; sheep, 692,324; pigs, 600,133. Coal production (1918), 3,418,751 tons of which the state mines produced 1,402,311. The vessels engaged in the fisheries in 1917 numbered about 17,673.

COMMERCE. The statistics of general trade have long been defective, but new methods of compilation were recently introduced, and the following information concerning the results is supplied by the United States Bureau of Foreign and Domestic Commerce, December 26th: The statistics gathered under the new method cover the calendar year 1917. For 1918 and the first six months of 1919 only partial statistics covering selected items have so far been issued. Consequently, no adequate comparison with these periods can be made, except for individual commodities. Comparison with prior years is of doubtful value, as the methods of compiling and recording statistics were so radically changed on Jan. 1, 1917. According to the new statistics, the total imports into the Netherlands in the calendar year 1917 amounted to 7,472,339 metric tons, gross weight, valued at \$435,000,208. The total exports from the Netherlands for that year equaled 3,321,590 metric tons, gross weight, with a value of \$336,673,258. This excess of imports over exports is a normal phenomenon in the trade of the Netherlands. As regards weight, the imports of that country consist in large part of bulky raw materials, noticeably coal, whereas its exports are composed to a greater extent of manufactures which possess a higher value per ton. As regards value, the Netherlands is a "creditor nation," with large sums invested in

less developed lands (especially its colonies), and must receive a large part of the interest due and repayments of principal in the form of goods. In 1912 the Netherlands had an import trade of \$1,452,458,170, as against an export trade of \$1,251,472,030; in 1913 the Dutch imports were valued at \$1,574,989,940, and the exports at \$1,239,359,908. The principal countries entering into the import and export trade of the Netherlands during the year 1917, are listed in the following table:

Countries of origin or destination		Calendar year 1917	
		Value	Per cent of total value
IMPORT TRADE			
Germany	\$106,187,500		24.41
United States	79,816,300		18.35
Belgium	9,022,500		2.07
United Kingdom	115,072,500		26.45
Sweden	29,567,500		6.80
Argentina	19,273,900		4.43
Dutch East Indies	40,556,600		9.32
All other countries of origin...	35,503,000		8.17
Total imports	\$435,000,200		100.00
EXPORT TRADE			
Belgium	\$25,020,000		7.49
Germany	127,325,500		37.82
United Kingdom	82,857,000		24.61
United States	14,735,600		4.41
Austria-Hungary	18,606,600		5.53
France	9,056,300		2.69
Dutch East Indies	15,747,500		4.68
Norway	3,615,400		1.09
Sweden	8,181,900		2.43
Denmark	3,789,700		1.12
Switzerland	8,618,900		2.56
All other countries of destination	19,118,900		5.57
Total	\$386,673,300		100.00

The principal individual items in point of value in the import trade of the Netherlands during 1917, together with the proportion which they bear to the total import trade, are shown in the following table:

Principal imports	Value	Total imports Per cent
Gold coin	\$37,712,000	8.67
Gold bullion, leaf, and waste...	7,239,000	1.66
Wheat	29,115,000	6.69
Coal	28,205,000	6.48
Corn	14,605,000	3.36
Norwegian lumber:		
Sawed	13,979,000	3.21
Round or square, sawed or hewn	5,051,000	1.16
Cotton yarn, untwined and undyed	12,325,000	2.83
Sumatra leaf tobacco	11,707,000	2.69
Java leaf tobacco	8,899,000	2.05
Palm-kernel oil	7,168,000	1.65
Cement	7,016,000	1.61
Tools and instruments	6,560,000	1.51
Copra	6,508,000	1.50
Linseed cake and meal	5,083,000	1.17
Chile saltpetre, crude	5,010,000	1.16
North American cotton, raw	4,665,000	1.07
Wool, unwashed and rough washed	4,281,000	.98
Java coffee, unroasted	4,198,000	.96
Coke	4,129,000	.95
Cacao beans	3,559,000	.82
Barley	3,546,000	.82
Rapeseed oil	3,472,000	.80
Petroleum	3,273,000	.75
Oats	3,101,000	.71
Cottonseed oil	2,920,000	.67
Iron and steel:		
Beams, rods, bands, etc., profiled	2,884,000	.66
Plates	4,767,000	1.10
Drawn bars and rods	4,100,000	.94
Other, n. e. s.	4,590,000	1.06

The prominent part played in the import trade by foodstuffs, raw materials for industry, and colonial products for resale will be noted. Correspondingly prominent in the export trade are the products of dairying and husbandry, diamonds (of which Amsterdam is a world market), fishery products, and colonial wares imported for resale to the outside world. Important, but less noticed by the casual observer, are the products of Dutch manufacture, the variety and extent of which are not always realized. The values of the principal items entering into the export trade of the Netherlands for 1917 are given in the following table, with the percentages which these values represent of the total exports for the year:

Principal exports	Value	Total exports Per cent
Margarine and artificial butter..	\$33,626,000	9.99
Cheese	27,705,000	8.23
Butter	21,673,000	6.44
Condensed milk, sweetened.....	13,434,000	9.99
Dried vegetables	11,608,000	3.45
Fresh eggs	11,189,000	3.32
Diamonds, cut and uncut, not set.	9,939,000	2.95
Sumatra leaf tobacco	9,701,000	2.88
Salt pork and bacon	7,759,000	2.30
Java leaf tobacco	7,505,000	2.23
Flax, retted and swingled	7,424,000	2.21
Pickled vegetables	6,114,000	1.82
Gold coin	5,940,000	1.76
Metal-flament electric lamps	5,054,000	1.50
Fresh sea fish, n. e. s.....	4,557,000	1.35
Bleached cotton goods	4,369,000	1.30
Onions and shallots	4,194,000	1.25
Cigars	3,938,000	1.17
Potatoes	3,930,000	1.17
Flower bulbs	3,183,000	.95
Horses, less than 3 years old	3,030,000	.90
Seed-leaf tobacco, in the leaf.....	2,933,000	.87
American leaf tobacco	2,901,000	.86
Fresh vegetables, n. e. s.....	2,780,000	.83
Sauer kraut	2,724,000	.81
Fowls, slaughtered	2,517,000	.75
Colored cottons	2,506,000	.74
Greek leaf tobacco	2,502,000	.72
Strawboard paper	2,405,000	.71
Quinine sulphate and other alkalo- ids of quinia	2,367,000	.70

COMMUNICATIONS. Vessels entered in 1918, 1779 with a tonnage of 1,663,093; cleared, 1966, with a tonnage of 1,700,309. Of those entered, Dutch vessels numbered 809 with a tonnage of 479,070, and of those cleared, 947 with 584,719. Total length of canals, about 2000 miles; of the four principal railways (1917), 2377.

FINANCE. The budget for 1918 was: Revenue, 285,677,443 guilders; expenditure, 588,706,424 guilders. Budget estimates for 1919 were: Revenue, 307,533,000 guilders; expenditure, 438,211,778 guilders. The total national debt in 1919 was given as 1,850,646,000 guilders, bringing an annual interest of 82,017,526 guilders.

GOVERNMENT. Executive power is vested in the sovereign and legislation in a Parliament (States-General) of two houses. Reigning sovereign, Queen Wilhelmina (born Aug. 31, 1880) who ascended the throne Nov. 23, 1898; heiress apparent, Princess Juliana (born April 30, 1909). Prime Minister at the beginning of 1919, Dr. Ch. J. M. Ruys de Beerenbrouck (appointed Sept. 9, 1918).

HISTORY. During the early part of 1919 the criticism of the government for harboring the former German Emperor continued. The attitude of the Socialists became more aggressive and their leader, Peter J. Troelstra, went so far

as to declare in Parliament that the time had come when the working classes should assume control of the government, and another Deputy even demanded the immediate abdication of the Queen. Friction with Belgium arose as is noted elsewhere (see WAR OF THE NATIONS) as a result of the latter's demand that Limburg and other regions belonging to the Netherlands should be ceded to it. The Peace Conference refused the Belgian demand, and there were signs of bitter feeling toward the close of the year. A cabinet crisis was threatening at the close of the year. On December 23d the Minister of War announced his resignation following the resignation of the Minister of the Navy a week before. Difficulties arose from the policy of defense advocated by members of the government after the war and its relation to the fate of the League of Nations. The government stood for a policy of self-protection for the present in view of the fact that reliance could not be placed in the League of Nations as a safeguard and it held that the situation of the world was still precarious and that the country needed the protection of a considerable army. The Socialists opposed this policy declaring that the League of Nations would obviate any need of heavy armaments. The Minister of War resigned when Parliament modified his war budget, greatly reducing the amount he had demanded for munitions. His war budget looked to an army of about 200,000 men. See EXPOSITIONS.

NEVADA. POPULATION. The population of the State in 1910 was 81,975 and on July 1, 1919, it was estimated to be 118,745, a gain during the year of 4000.

AGRICULTURE. The following is compiled from an annual report of the Federal Department of Agriculture.

Crop	Year	Average	Prod. Bu.	Value
Oats	1919	12,000	384,000	\$ 384,000
	1918	14,000	532,000	628,000
Barley	1919	12,000	420,000	630,000
	1918	12,000	408,000	628,000
Wheat	1919	29,000	668,000	1,429,000
	1918	42,000	1,070,000	2,205,000
Hay	1919	225,000	a 526,000	10,310,000
	1918	221,000	a 575,000	11,442,000
Potatoes	1919	6,000	900,000	1,350,000
	1918	9,000	1,539,000	1,893,000

a Tons.

TRANSPORTATION. The total railway mileage in the State in 1919 was 2843. Of this 2281 was first track. The longest roads were the Southern Pacific and the Western Pacific.

FINANCE. According to the annual report of the State Treasurer, the balance in the treasury on Jan. 1, 1919, was \$886,313, and on Dec. 31, 1919, it was \$814,736. The total receipts for the year amounted to \$2,174,188; while the disbursements for the year amounted to \$2,245,764. The largest items of income were from the sale of lands, from fees and licenses, and interest on investments, together with the county tax. The largest items of expenditure were for schools, highways and administration. The outstanding State bonds, as of Dec. 31, 1919 amounted to \$716,500, of which \$19,500 were issued in the course of the year.

CHARITIES AND CORRECTIONS. The penal and charitable institutions of the State are under separate control. The following is a list of said institutions: State Orphans' Home, Carson

City; Prison, Carson City; Hospital for Mental Diseases, Reno; School of Industry, Elko; Crittenden Home, Reno. The expenditure for 1918 was \$148,521.

EDUCATION. The school population in 1918 was 14,441; the enrollment, 14,578; and the average daily attendance was 11,014. The total expenditure for educational purposes in 1918 was \$504,474.

OFFICERS. Governor, Emmet D. Boyle; Lieutenant-Governor, M. J. Sullivan; Secretary of State, George Brodigan; Treasurer, Ed Malley; Comptroller, George A. Cole; Attorney-General, Leonard B. Fowler.

JUDICIARY. Supreme Court: Chief Justice, Ben W. Coleman; Associate Justices, J. A. Sanders, Edward A. Ducker; Clerk, William Kennett.

NEVADA, UNIVERSITY OF. A co-educational State institution at Reno, Nev., in 1873. The enrollment for the summer of 1919 was 118 and for the fall, 379. The faculty numbers 48. Productive funds of the university amount to \$305,737. The library contains 40,000 volumes. During the year construction was started on the new education building. President, Walter E. Clark, Ph.D., LL.D.

NEWARK, NEW JERSEY. See CITY PLANNING AND GARBAGE.

NEW BRUNSWICK. One of the Maritime Provinces of Canada, east of the State of Maine, and south of the Province of Quebec. Capital, Fredericton. Area, 27,985 square miles; population (1911), 351,889. Largest city, St. John (population in 1911, 42,511). The capital, Fredericton, had a population (1911) of 7208. Area under field crops in 1917, 880,000 acres, with a production valued at \$24,404,000. Spring wheat in 1918 yielded 1,051,000 bushels; oats, 7,856,000; barley, 1,794,000; potatoes, 9,078,000. Cattle in 1918 numbered 287,000. It is under a lieutenant-governor appointed by the governor-general of Canada. Lieutenant-governor at the beginning of 1919, W. Pugsley; prime minister, W. E. Foster. See CANADA.

NEW CALEDONIA. A French colony of Melanesia, comprising as dependencies the Wallis Archipelago, Loyalty Islands, Isle of Pines, Huon Island, and the islands of Futuna and Alafi. Area of New Caledonia itself, 7650 square miles; population (1911), 50,808. Capital, Nouméa, with a population of about 10,000 (1915). Imports (1917), 17,947,849 francs; exports, 19,852,393 francs.

NEWFOUNDLAND. An island colony of Great Britain in the northeastern part of the Gulf of St. Lawrence. Area 42,734 square miles; population (1911), 242,619; estimated, Dec. 31, 1917, 252,464. St. Johns is the capital, with a population of 33,980 in 1917. Other towns with their populations in 1911 are Harbour Grace, 4279; Bona Vista, 3911; Carbonear, 3540. The coast range rises to about (2000 feet) and beyond the mountains which attain their highest point near the coast is a rolling country, part of which is heavily timbered. Fertile land, however, is found around the water courses and lakes. The chief industries are agriculture, fishing, mining and lumber. The chief agricultural products are hay, potatoes and other vegetables, and oats. In 1917, 1298 men and 78 Newfoundland sailing vessels were engaged in the bank cod fishery, and the catch in 1917 was valued at \$1,324,980. In 1918 the number of seals caught was 151,431, valued at \$864,000. Val-

uable iron deposits have been found on Belle Island on the eastern coast and others on the western coast, the total being placed at 3,600,000,000 tons. There is a considerable exploitation of copper ore and pyrites and there are coal deposits near St. George's on the western coast and in the neighborhood of Grand Lake. Large paper and pulp mills have been established in recent years at Grand Falls and Bishop's Falls. More recently there has been a development of the manufacture at Deer Lake.

Imports, 1918-19, £5,528,000; exports, £6,198,000; revenue, estimated for 1917-18, \$5,700,000; expenditures, \$5,450,000; for 1918-19, revenue, \$6,500,000; expenditure, \$5,400,000. Public debt (1917), £7,089,557. Reported length of government railways open for traffic in 1917, 841 miles; private railway, 47 miles; telegraphs (1916), 4591. Included in the administration of Newfoundland is that portion of the peninsula of Labrador which lies between the Hudson Strait and Blanc Sabline, and whose coast line extends 600 miles; area about 120,000 square miles and population estimated in 1917 at 4031. Executive power is in the hands of a governor assisted by executive council and legislative power in the hands of a legislative council and elected house of assembly. Governor at the beginning of 1919, Sir C. A. Harris; Prime Minister, Sir W. F. Lloyd. On May 23d a new ministry was formed under Sir M. P. Cashin, former minister of finance. Newfoundland was represented at the Peace Conference by the premier, Sir W. F. Lloyd.

NEW GUINEA. An island of the East Indies, next to Australia and Greenland, the largest in the world. Area estimated at about 310,000 square miles; population estimated roughly at a little less than 1,000,000. The island is distributed as follows: Western part to 141° east included in the Dutch East Indies; northeastern part included in the former German colony of Kaiserwilhelmsland; southeastern part in the British colony of Papua. See DUTCH EAST INDIES, GERMAN NEW GUINEA, KAISERWILHELMSLAND, PAPUA. The British Board of Trade January, 1919, published figures for imports and exports of New Guinea for 1917-18. The imports were \$1,381,074; exports \$1,073,545—in each case an increase over the previous year and in case of the exports an increase of 100 per cent over 1915-16. It was due in part to the increase in the production of pearls but chiefly to the advance in copra and rubber production.

NEW HAMPSHIRE. POPULATION. The population in 1910 was 430,572 and July 1, 1919 it was estimated to be 448,274, a gain of less than 2000 during the last twelvemonth.

AGRICULTURE. The following table of the more important crops of the State is compiled from a report of the federal Department of Agriculture.

Crop	Year	Acreage	Prod. Bu.	Value
Corn	1918	21,000	1,050,000	\$1,785,000
	1918	24,000	1,080,000	1,620,000
Oats	1919	33,000	1,221,000	1,038,000
	1918	30,000	1,140,000	992,000
Hay	1919	450,000	a 675,000	16,200,000
	1918	440,000	a 506,000	9,513,000
Potatoes	1919	20,000	2,400,000	4,200,000
	1918	21,000	2,940,000	4,263,000

a Tons.

FINANCE. According to the report of the State Treasurer, the balance on hand Sept. 1,

1917, was \$142,390, and that on hand Sept. 1, 1918, was \$447,764. The receipts for this period amounted to \$4,367,422 and the disbursements, \$4,062,048. The net indebtedness on the latter date was \$1,541,351 and the increase during the year of \$110,348. These are the latest available figures for the State's finances.

TRANSPORTATION. The total railway mileage in the State in 1919 was 1202. There has been practically no construction of recent date. The lines controlled by the Boston & Maine comprise 1020 miles.

CHARITIES AND CORRECTIONS. The State Board of Charities and Corrections has supervision over the following institutions: State Industrial School, at Manchester; State Hospital for the Insane, at Concord; State Prison, at Concord; State Sanatorium, at Concord; School for Feeble-Minded, at Laconia; Soldiers' Home, at Tilton. The Board also has charge of county almshouses and jails. The population of these on Aug. 31, 1918 was 754 and 70 respectively. In the year ending on that day there were committed to county houses of correction, 892 men and 69 women. At this time, also, there were 799 boys and 695 girls in orphans' homes and asylums, while there were in the State a total of 763 children under 15 dependent or delinquent. In March, 1918, there was started a Child Welfare Department; for several years the State has been aiding the blind by means of out-door relief. The expenses for the Board in the year ending Aug. 31, 1918, totalled \$52,549.

LEGISLATION. The biennial session of 1919 passed laws as follows: Revising the method and time of payment of wages by industries and corporations; making the salary of the State treasurer \$3500; regulating the practice of dentistry, insurance agents, building and loan associations, peddling, etc.; defining the term "net assets" as applied to mutual insurance companies; vesting control of certain State institutions in the governor and council; revising the inheritance tax law; authorizing the judiciary to order an allowance by the husband to wife during pendency of a suit for divorce; providing for the issuance by the governor to ministers of licenses to marry persons within the State; relating to trade names; making uniform the law of fraudulent conveyances; revising the law relating to work in factories, and the liability of employers therein; establishing a board of registration in optometry, and regulating the practice thereof; regulating the jitney business, declaring jitnies common carriers and subject to governmental control; raising the poll tax from two to three dollars; a business corporation law; relating to nuisances and remedies, etc.; exempting from taxation pure-bred live-stock; pertaining to public schools and the State board of education; authorizing cities to acquire and operate street railway properties; establishing a new system of cross-state highways; granting fiduciary powers to trust companies and national banks; revising the taxation of street railways; regulating the practice of chiropody; decreeing that the purple lilac be the State flower; providing for an executive budget system; an act "to prevent the overthrow of the government by force." The Federal prohibition amendment was ratified on January 15th. In all 220 acts were passed.

OFFICERS. Governor, John H. Bartlett; Secretary of State, Edwin C. Bean; Treasurer, John

W. Plummer; Attorney-General, Oscar L. Young. **JUDICIARY.** Supreme Court: Chief Justice, Frank N. Parsons; Associate Justices, Reuben E. Walker, John E. Young, Robert J. Peaslee, William A. Plummer; Clerk, A. H. Chase.

NEW HAMPSHIRE COLLEGE. A State institution of learning, founded in 1866 at Durham, N. H. In the fall the registration was 806, and there were 68 members in the faculty. The income for the year amounted to \$310,000. The library contains 30,000 volumes. President, Ralph Dorn Hetzel, LL.D.

NEW HEBRIDES. A group of Melanesian islands under the joint administration of France and Great Britain in accordance with the Anglo-French agreement of October, 1906. Estimated area, 5000 square miles; estimated population, about 70,000. The seat of government is Vila on the island of Efata. The natives are uncivilized but there are Presbyterian and French Catholic mission schools among them. The sale of intoxicants, arms and ammunition to the natives is prohibited. Revenue estimated for 1918, £10,260; expenditures £15,061; the deficit being met by the British and French governments jointly. In 1918 the expenditure for purely British purposes was estimated at £7754. The administration is in the hands of high commissioners for Great Britain and the French Republic respectively. At the beginning of 1919 the British resident was M. King and the French resident, E. Lippman. In certain French quarters it was urged that the Anglo-French condominium should be terminated and the entire archipelago be annexed to the French colonial domain. The question would no doubt have been settled by the Anglo-French commission which met in London in 1914 to consider changes in the matter of territories subject to the joint control of the two governments, but that commission was broken up by the war. The arguments advanced for French annexation were as follows: (1) French numerical predominance; figures for the European population in 1918 were given as French, 664; English, 262. (2) Greater property interest of the French; French ownership of real estate was placed at 617,000 hectares; British, at 129,000. (3) Greater commercial interest of the French; out of a total trade of 7,866,000 francs in 1912, 5,309,000 francs was attributed to France. (4) Justice to French interests, in view of the fact that "all the German colonies of the Pacific lying to the south of the equator, in the capture of which France had participated, had been incorporated in the British Empire; that in particular New Guinea, the Bismarck archipelago, and the German Solomon islands had been especially attributed to Australia."

NEW JERSEY. POPULATION. The population of the State in 1910 was 2,537,167 and July 1, 1919, it was estimated to be 3,146,547, a gain during the twelvemonth of 66,000.

AGRICULTURE. The following table is compiled from a report of the federal Department of Agriculture.

Crop	Year	Acres	Prod. Bu.	Value
Corn	1919	270,000	10,800,000	\$16,524,000
	1918	265,000	10,865,000	16,298,000
Wheat	1919	109,000	1,962,000	4,316,000
	1918	87,000	1,479,000	3,180,000
Rye	1919	81,000	1,296,000	2,074,000
	1918	75,000	1,388,000	2,401,000
Hay	1919	325,000	a 488,000	14,201,000
	1918	325,000	a 488,000	13,664,000

Crop	Year	Acreage	Prod. Bu.	Value
Potatoes	1919	110,000	10,560,000	17,846,000
	1918	117,000	10,764,000	18,299,000
Sweet potatoes	1919	14,000	1,750,000	3,850,000
	1918	13,000	1,495,000	2,840,000
Cranberries . .	1919	10,200	6,161,000	1,288,000
	1918	9,700	6,126,100	1,072,000

a Tons. b Barrels.

TRANSPORTATION. The total railway mileage of the State in 1919 was 6006. The longest roads were the Pennsylvania, and the Central Railroad of New Jersey.

FINANCE. The balance in the treasury on July 1, 1918, was \$15,263,536 and on June 30, 1919 it was \$18,458,832. The total disbursements during this period were \$29,392,084 and the receipts amounted to \$32,587,384. See OLD AGE PENSIONS.

EDUCATION. The enrollment in public day schools in 1918 was 561,825, and in evening schools, 33,588. This is a net increase over 1917 of 16,170. The average daily attendance in day schools was 423,570. There were 2414 men and 15,329 women teaching in the schools in 1918. The salaries of teachers totalled in 1918 \$15,785,310, an increase of \$1,335,895 over 1917. The average salary per year for day schools was \$948.29, an increase over 1917 of \$52.60. The total receipts during the year, including the balance at the beginning of the year, were \$37,429,736; the expenditures total \$32,723,115. On July 1, 1918, the outstanding debt for schools was \$55,107,847. On July 1, 1918, the outstanding debt for schools was \$55,107,847. The State school tax for the year beginning July 1, 1917 was \$7,314,863; the State appropriation was \$100,000; the State school fund appropriation was \$250,000, and the railroad tax, used for this purpose, was \$2,991,422.

LEGISLATION. The legislature of 1919 passed 261 measures. These included: A revision of the laws relating to State charitable, penal, and reformatory institutions, centralizing these and others under the Department of Institutions and Agencies, and determining the jurisdiction and procedure of the Department; provision for the inspection of refrigerating plants using ammonia or ethyl chloride; revision of two conflicting systems of Teachers' Pensions; making more stringent the law and penalty for arson; revising the law which classifies those exempt from taxation; establishing rules for the dissolution and distribution of assets of partnerships; making the soliciting by persons not of the bar of New Jersey, to institute a suit for damages, a misdemeanor; providing for absentee voting for citizens in military and naval service; giving State banks power to act in a fiduciary capacity; "Red Flag" law providing that "Any person who shall, in public or private, display a red flag, a black flag, or any ensign or sign bearing an inscription opposed to organized government, for the purpose of inciting, promoting or encouraging hostility or opposition to or the subversion or destruction of any and all government, shall be guilty of a high misdemeanor and punished by a fine not exceeding \$2000, or imprisonment at hard labor not exceeding 15 years, or both"; giving power to local government agencies to issue bonuses to employees, till 1922, the purpose being to tide over the present abnormal price situation; permitting municipalities to purchase sewer and water systems; laws concerning cities, corporations, conveyances,

counties, building and loan associations, elections, primaries, workmen's compensation, etc.; an eight-hour law for miners; creating a State Employment Bureau; amending the law regulating the practice of medicine, whereby after July 1, 1920, all applicants must present certificates showing that at least one year of study beyond high school was pursued in arts and sciences, before entering the medical college; changing the penalty for murder; establishing a uniform law of conditional sales; uniform laws of partnership and limited partnerships; a uniform law of fraudulent conveyances. Joint resolutions were passed creating commissions to investigate the tax laws; to urge upon Congress the importance of appropriating money for the construction of a canal across the State of New Jersey; to confer with the State of New York concerning the development of the harbor of New York; on municipal financing, medals for soldiers, and pension and retirement funds. Resolution No. 4 purports to secure for the State of New Jersey the permanent site of the headquarters of the League of Nations, by allowing littoral cities of certain size to purchase land, etc., for this purpose.

OFFICERS. Governor, William N. Runyon; Secretary of State, Thomas F. Martin; Attorney-General, Thomas F. McCran; Treasurer, William T. Read; Comptroller, N. A. K. Bugbee; Purchasing agent, E. E. Grosscup; Adjutant-General, Frederick Gilkyson; Commissioner of Banking and Insurance, Frank H. Smith; Commissioner of Labor, L. T. Bryant.

JUDICIARY. Supreme Court: Chief Justice, William S. Gummere; Justices, T. W. Trenchard, C. W. Parker, J. J. Bergen, J. F. Minturn, C. C. Black, C. G. Garrison, F. J. Swayze, S. Kalisch; Clerk, E. L. Johnson.

NEW JERUSALEM, CHURCH OF THE. Also known as the New Church, this denomination was founded in 1787 in London, its teachings being based on the writings of Emanuel Swedenborg, who was born in Sweden in 1688. In 1792 two branches were established in the United States, the General Convention and the General Church, although not fully organized until some time later. The General Convention conducts missionary work in Germany, France, Switzerland, Italy, Austria, Denmark, Sweden, and a few small stations in neighboring countries. A theological seminary is maintained at Cambridge, Mass. The latest available statistics are for 1916, when there were 108 churches, 6352 members, and church property valued at \$1,711,090. The General Church was at first connected with the General Convention, but severed all connection in 1890. The church differs from other branches of the New Church simply in its attitude toward the writings of Swedenborg, which it regards as being "divinely inspired and thus the very Word of the Lord, revealed at His second coming." In 1916 there were 15 churches, 733 members, and church property valued at \$55,032. *The New Church Messenger* is the official journal. The publishing house (publishing Swedenborg's works) is at 3 W. 29th St., New York City.

NEW MEXICO. POPULATION. The population of the State in 1910 was 327,301 and July 1, 1919, it was estimated to be 450,381, a gain during the twelvemonth of 13,000.

AGRICULTURE. The following is compiled from

an annual report of the Federal Department of Agriculture.

Crop	Year	Acreage	Prod. Bu.	Value
Corn	1919	240,000	7,200,000	\$10,872,000
	1918	160,000	4,000,000	7,200,000
Oats	1919	65,000	2,340,000	2,223,000
	1918	46,000	1,288,000	1,146,000
Wheat	1919	283,000	6,100,000	12,200,000
	1918	173,000	2,892,000	6,073,000
Hay	1919	235,000	a 646,000	11,757,000
	1918	190,000	a 418,000	8,360,000
Potatoes	1919	11,000	495,000	940,000
	1918	10,000	1,000,000	1,600,000
Beans	1919	128,000	960,000	3,552,000
	1918	141,000	564,000	2,425,000

a Tons.

CHARITIES AND CORRECTIONS. The following institutions are supported by the State: Blind Asylum, at Santa Fe; Deaf and Dumb Asylum, at Santa Fe; Insane Asylum, at Las Vegas; Miners' Hospital, at Raton; Orphan School, at Santa Fe; Penitentiary, at Santa Fe; Reform School, at Springer.

TRANSPORTATION. According to the statistics of the 1919 New Mexico *Blue Book*, the following is the mileage of the chief railways of the State.

	Miles of Road	Track Yard etc.	Total
Atchison, Topeka and Santa Fe	1,487	465	1,953
Rock Island	153	24	177
Denver & Rio Grande	236	14	250
El Paso & Southwestern	500	105	605
E. P. & S. W. rd. Co.	241	29	270
New Mexico Central	116	4	120
Southern Pacific	168	47	215
Total mileage of all roads	3,102	714	3,817

LEGISLATION. The Fourth State Legislature, sitting from January to March, passed the following measures. A system of proceedings in *quo warranto* was established; the penalty for larceny of cattle was increased; restriction of live-stock owners to one brand; expenditures of rural schools were limited to 10 mills; exemption from tax of lands the title to which is held by the State; provision of method of resignation of members of the legislature; fixation of feeding of jail prisoners at a maximum of 75 cents per diem; defining the offense and penalty of conspiracy; prohibition of the desecration of the flag and its use for purposes of advertisement; creation of a State bath house at Hot Springs; creation of State board of dental examiners; creation of sire registration board; creation of a State department of health; amendment to ballot law of 1917; creation of a girls' welfare board; an act regulating the leasing of State lands for mineral purposes and retaining permanent ownership of all oil lands with an eighth royalty; creation of a soldiers' settlement board; prohibition of nepotism by State, county and city officials; an act permitting cities to buy public utilities by hypothecating revenues; creation of office of State traveling auditor; codification of laws on irrigation and drainage; creation of State tax commission; establishment of State mounted police; recodification of general banking act; permission of commission form of government in cities of 10,000 or more population; establishment of child's welfare service; provision of teaching of Spanish in public high schools on petition; an act requiring establish-

ment of night schools for illiterates; imposition of an annual franchise tax on corporations; also establishment of State inheritance and income taxes; a workmen's compensation bill; the State budget system was made permanent; an election on a \$2,000,000 road bond issue was authorized; the maximum rate of interest was fixed at 10 per cent; and many laws were passed regulating and revising legal procedure.

OFFICERS. Governor, O. A. Larrazolo; Lieutenant-Governor, B. F. Pankey; Secretary of State, Manuel Martinez; Auditor, Edward Sargent; Treasurer, Charles U. Strong; Attorney-General, O. O. Askren; Superintendent of Public Instruction, J. H. Wagner; Adjutant-General, James Baca.

JUDICIARY. Supreme Court: Chief Justice, Frank W. Parker; Associate Justices, Herbert J. Reynolds, Clarence J. Roberts; Clerk, Jose D. Sena.

NEW ORLEANS OPERA. See *MUSIC, Opera*.

NEW SOUTH WALES. A state of the Commonwealth of Australia, situated in the southeastern part of the continent and bounded by Queensland on the north, Victoria on the south, South Australia on the west and the Pacific on the east. The capital is Sydney, the second largest city in the southern hemisphere, being next to Buenos Aires. Area of New South Wales, 309,432 square miles or about one-tenth of the Commonwealth area; population estimated June 30, 1918, 1,897,084. The forests cover about one-fourth of the total area. Education is compulsory between the ages of seven and 14. In 1917 there were 3412 public schools while 659 were privately conducted. There were 282,757 children enrolled in public schools and 8228 teachers. The State religion was abolished in 1862 but the Church of England predominates.

For the fiscal year ended June 30, 1918, the railways of New South Wales had a net loss of £28,916, which profits of £48,835 on the tramways turned into a profit of £11,919. For the year 1918-19 the railway loss was £211,817, and as the profit from the tramways was £18,448, the deficit was one of £193,369. Both passenger and goods receipts were higher in the latter year, so that the increase was £1,003,293, or 11.2 per cent, of which £444,137 were received from increased rates and fares in force from November 1, 1918. On the other hand, working expenses increased £964,003, or 16.2 per cent. Wages took £283,000, increased price of coal £16,000, and of other materials £184,000. A strike of the employees, the influenza epidemic, and a prolonged drought were other misfortunes of the year. See *AUSTRALIA*.

NEW SYMPHONY ORCHESTRA. See *MUSIC, Orchestras*.

NEW YORK. POPULATION. The population of the State in 1910, was 9,113,614 and July 1, 1919, it was estimated to be 10,833,795, a gain during the last 12 months of 186,000.

AGRICULTURE. The following table is compiled from a report of the Federal Department of Agriculture.

Crop	Year	Acreage	Prod. Bu.	Value
Corn	1919	820,000	35,260,000	\$58,532,000
	1918	800,000	28,800,000	50,400,000
Oats	1919	1,160,000	29,580,000	24,551,000
	1918	1,260,000	51,660,000	43,394,000
Wheat	1919	524,000	11,178,000	24,032,000
	1918	430,000	7,840,000	16,856,000

Crop	Year	Acreage	Prod. Bu.	Value
Hay	1919	4,388,000	a 6,579,000	134,870,000
	1918	4,300,000	a 5,375,000	109,650,000
Beans	1919	100,000	1,450,000	7,105,000
	1918	200,000	1,660,000	11,122,000
Potatoes	1919	363,000	39,567,000	57,372,000
	1918	380,000	37,240,000	45,433,000

a Tons.

CHARITIES AND CORRECTIONS. The following is a list of the various State charitable and reformatory institutions with their respective populations, as of June 30, 1918.

Western House of Refuge for Women, at Albion, 206; School for the Blind, Batavia, 126; Soldiers' and Sailors' Home, Bath, 1005; Reformatory, Elmira, 726; Eastern New York Reformatory, Napanoch, 206; Training School for Girls, Hudson, 366; Custodial Asylum for Feeble-Minded Women, Newark, 891; House of Refuge, Randall's Island, 645; Custodial Asylum, Rome, 1724; Agricultural and Industrial School, Industry, 837; Institution for Feeble-Minded Children, Syracuse, 582; Thomas Indian School, Iroquois, 177; Craig Colony for Epileptics, Sonyea, 1477; Woman's Relief Corps Home, Oxford, 181; Hospital for Care of Crippled and Deformed Children, West Haverstraw, 134; Hospital for Treatment of Incipient Pulmonary Tuberculosis, Raybrook, 302; Letchworth Village, Thiells, 351; Reformatory for Women, Bedford Hills. The cost of these institutions to the State is about \$3,000,000. The official head is the fiscal supervisor of State Charities.

TRANSPORTATION. The total railway mileage of the State in 1919 was about 8500. The longer roads are the New York Central, the Erie, the Delaware and Hudson, and the Lehigh Valley.

STATE OFFICERS. Governor, Alfred E. Smith, Dem.; Lieutenant-Governor, Harry C. Walker, Dem.; Secretary of State, Francis M. Hugo, Rep.; Comptroller, Eugene M. Travis, Rep.; Treasurer, James L. Wells, Rep.; Attorney-General, Charles D. Newton, Rep.; Engineer and Surveyor, Frank M. Williams; Superintendent of Public Works, Edward S. Walsh; Commissioner of Education, John H. Finley; Superintendent of Insurance, Jesse S. Phillips, Rep.; Adjutant-General, Charles W. Berry, Dem.

JUDICIARY. Court of Appeals: Chief Judge, Frank H. Hiscock; Associate Judges, E. A. Chase, Frederick Collin, W. H. Cuddeback, J. W. Hogan, B. N. Cardozo, C. W. Pound, C. B. McLaughlin, F. E. Crane, W. S. Andrews; Clerk, Richard M. Barber; Reporter, J. N. Fiero. See AGRICULTURAL EXPERIMENT STATION; CHILD LABOR; ROADS; TAXATION.

See OLD AGE PENSIONS; SOCIAL INSURANCE.

NEW YORK CITY. See EXPOSITIONS; DOCKS AND HARBORS; WATER-WORKS.

NEW YORK PHILHARMONIC SOCIETY. See MUSIC, *Orchestras* and *Novelties*.

NEW YORK UNIVERSITY. A non-sectarian educational institution in New York City. Women are admitted to some of its departments. The enrollment for the summer school of 1919 was 1300 and for the fall there were 9765 additional students. The faculty contains 518 members. In 1917-18 the productive funds amounted to \$1,198,285 and the income \$762,192. The library contains 141,196 volumes. In 1919 construction was begun on the main building of a new chemistry laboratory, and also on the main engineering building. The university was

founded in 1831. Chancellor, Elmer Ellsworth Brown, LL.D.

NEW ZEALAND, DOMINION OF. A self-governing British dependency in the South Pacific, comprising three principal islands and several small ones. The capital is Wellington.

AREA AND POPULATION. Area of North Island, 44,130 square miles; South Island, 58,120; Stewart Island, 662; total, 103,581. Total population estimated June 30, 1918, 1,106,677 exclusive of Maoris and inhabitants of Cook Island. Population of North Island (1916), 651,072; South Island (including Stewart Island and Chatham Islands), 448,337; Total, 1,162,293 (including 49,776 Maoris and 12,797 inhabitants of Cook and other islands in the Pacific annexed in 1901). Population of the chief cities on October, 1916: Auckland, 133,712; Wellington, 95,235; Christchurch, 92,733; Dunedin, 68,716; Wanganui, 19,517; Invercargill, 17,862. The total number of births in 1918 was 25,867, which was lower than in any preceding year after 1907, the highest point having been reached in 1916 with 28,509. The births in 1917 numbered 28,239 of which 1159 were illegitimate. In 1918 the number of deaths greatly increased, reaching 16,364 (or 14.84 per 1000), as compared with 10,596 (or 9.64 per 1000) in 1916. In 1917 the deaths had numbered 10,528, and the marriages 6417. In 1917 the immigrants numbered 15,649, and the emigrants 13,869, both exclusive of the expeditionary forces. This was a large falling off from 1916 when the numbers were respectively 21,799 and 21,163.

EDUCATION AND RELIGION. Illiteracy is rare. In 1916 95 per cent of the population over five years of age were reported as able to read and write. At the end of that year the primary schools numbered 2335 with 5781 teachers, and 185,884 pupils enrolled, and there were 37 secondary schools with 323 teachers, and 7052 pupils. Education is compulsory between the ages of 7 and 14. There is a university which is simply an examining body whose graduates in 1917 numbered 2236, and four affiliated colleges at Dunedin, Christchurch, Auckland, and Wellington, respectively. The Church of England is the most important denomination numerically, having nearly 43 per cent of the church members. Next in importance numerically were the Presbyterian and the Roman Catholic churches. The church population, according to the census of 1916, was 1,069,948, the number of places of worship, 3847, and the number of clergy in June, 1918, 1638.

PRODUCTION. The area under crops was 16,906,672 acres in 1917; under forest, about 17,000,000 acres. Preliminary figures of the number of acres devoted to the three main crops in 1918, together with the size of the crop in 1000 bushels and the average yield per acre are shown in the following table:

Main crops	Area (acres)	Crop (1000 bu.)	Average yield per acre
Wheat	276,877	6,761	24.42
Oats	153,899	4,785	31.20
Barley	19,289	572	29.66

In 1918 the live-stock was as follows: Horses, 378,991; cattle, 2,888,214; sheep, 26,538,302; pigs, 258,269. The season ending June 30, 1918, showed an increase in wheat over the previous

fiscal year of 6,761,249 bushels. The outlook for the 1918-19 crop was not promising and it was expected to fall below the crop of the previous season. In 1918 the government arranged to guarantee a minimum price of \$1.54 per bushel for wheat grown in New Zealand, and this was to extend to the 1919-20 harvest. During the season of 1917-18 there were 819,169 acres in grain and pulse crops as compared with 844,624 during the previous season. The Department of Agriculture was planning for a thorough, scientific, and practical system of farm education, and the government was doing progressive work on experimental farms. The farmers' coöperative associations during 1918 made marked progress.

unsettled. In 1918 there was a general demand that the able-bodied and other workmen should receive a minimum wage of \$14.60 per week and in the case of skilled workmen, \$19.46 a week. Farm labor was short during the year. See AGRICULTURE.

COMMERCE. After the beginning of the war the foreign trade of New Zealand showed remarkable progress and promised well for the future except for the danger to production involved in labor difficulties. In 1918 the foreign trade was \$256,500,761 as compared with \$255,573,064 in 1917. The following table shows the foreign trade, including specie, by countries for 1914, 1916, and 1918:

Countries	Imports		Exports	
	1914	1918	1914	1918
United Kingdom	\$58,329,606	\$67,495,703	\$43,690,100	\$104,064,705
Canada	2,331,735	3,685,333	4,530,536	2,898,541
Australia	3,376,371	19,476,565	24,981,618	9,384,607
Belgium	537,218	21,072	10	7,592
France	718,670	551,628	164,405	1,104,827
Germany	1,997,572	20,863	1,868	2,219,917
Italy	269,190	503,615	278,969	4,417
Netherlands	618,230	344,840	113,264	3,645
Sweden	388,429	500,081	340,013	2,915
China	159,646	336,392	561,419	813
Japan	912,473	2,739,712	5,912,140	289,596
Philippine Islands	107,121	152,176	173,003	151
United States	11,110,054	19,319,639	24,238,831	5,003,025
All other countries	25,506,376	13,032,502	12,948,312	2,824,725
Total	\$106,362,691	\$128,180,121	\$117,934,488	\$127,809,476
				\$161,990,879
				\$138,566,273

a Imports other than gold specie. b Exports other than gold specie.

The chief of these associations was that known as the New Zealand Farmers' Coöperative Association of Canterbury, which was organized 30 years before, and whose business amounted to about \$18,000,000 a year. The fresh meat, dairying, and fruit interests of the country are of especial importance. According to the census of the manufactures of 1916 the following industries were the most important in respect to the value of output: Meat-freezing and preservation; butter and cheese factories; grain mills; saw-mills and sash and door factories; tanning; feltmongering and wool scouring; printing and book-binding. The following table shows the quantity and value of the chief minerals exported from the country in 1917:

	Quantity	Value
Silver	787,152	£105,299
Tungsten-ore	161	28,972
Coal: { Exported	221,125	236,063
{ Consumed	1,847,294	923,647

On account of insufficient labor, the mining industry declined, and in 1919 there was reported to be a marked shortage in the coal supply. Discontent of the coal miners was the chief element in this. The government had exempted them from military service, but at the end of the war they either stopped work or worked on part time, thus reducing the output. No figures for the gold-mining industry were available in 1917 or 1918, but reports of the press indicated generally a decrease from 1916 when the value of the gold was placed at £1,199,212. The Kauri gum industry was important before the war and continued to yield good returns till 1916, but the exports from it in 1918 fell off considerably, owing to the lack of labor. During 1918 a higher rate of wages prevailed than in the previous year, but labor conditions were

The United States and Japan each considerably increased its imports. The exports during the year ending June 30, 1919, were \$193,100,262; imports, \$139,330,481. The principal classes of exports are shown in the following table:

Articles	1918-19
Wool	\$74,841,529
Meat	22,279,538
Tallow	7,850,881
Butter	17,484,726
Cheese	26,772,816
Sheepskins	9,427,588
Hides	3,440,893
Timber	2,516,866
New Zealand hemp	5,155,161
Other New Zealand produce	20,376,191
Total, New Zealand produce	190,146,189
Reexports and specie	2,954,073
Grand total	\$193,100,262

COMMUNICATIONS. In 1917, 543 vessels of 1,405,776 tons entered New Zealand ports, and 547 of 1,381,882 tons departed. Only 32 and 33 of these respectively were foreign ships. On March 31, 1918, the government railway system comprised 1269 miles in the North Island, and 1714 in the South Island, which with 29 miles of private lines made a total of 3012. In 1918 passenger traffic was light, owing largely to the increased fare. During the calendar year ending March 31st, the railways carried 11,730,643 passengers as compared with 14,528,947 for the previous year, and this decrease continued throughout the year 1918. On March 31, 1918, the government telegraph system comprised 13,687 miles of line and 50,291 of wire. The telegraph and telephone revenue for 1917-18 was £861,233. Not much railway construction work was done during 1918, but extensive plans were

under consideration for execution as soon as the necessary labor could be obtained. Cost of railway construction for the fiscal year ending March 31, 1919, was placed at \$3,260,555. In the fiscal year ending March 31, 1918, 12,330 miles of wire were added to the telephone system. In 1910

at that time about \$43,790,000. War pensions called for \$19,000,000 and old age pensions for \$3,500,000.

The following table from the *Statesman's Year Book* of 1919 shows the revenue from 1914 to 1918 inclusive:

Year ended March 31	Customs	Stamps, including post and tel.	Railways	Land tax	Income tax	Total (including others)
1914	£3,426,744	£2,479,508	£4,028,739	£767,451	£554,271	£11,961,493
1915	3,167,283	2,770,650	4,106,675	799,641	540,318	12,125,132
1916	3,866,171	3,160,224	4,484,337	1,048,356	1,392,119	14,186,095
1917	3,849,675	3,514,593	4,836,275	713,118	4,262,126	18,033,589
1918	3,364,308	3,728,270	4,668,223	1,385,708	5,619,561	19,860,884

extensive plans for harbor improvement were outlined. During the previous year there was a

The expenditures for 1914 to 1918 inclusive are shown in the following table:

Year ended March 31	Public debt charges	Railways	Education	Post and telegraph	Constabulary and defense	Total (including others)
1914	£2,887,980	£3,004,181	£1,206,678	£1,170,883	£753,471	£11,825,864
1915	3,071,448	2,881,087	1,288,795	1,245,224	804,007	12,379,803
1916	3,190,798	2,954,006	1,441,398	1,294,712	708,634*	12,493,107
1917	4,014,792	2,891,977	1,525,106	1,368,490	719,595*	14,058,770
1918	4,430,779	3,067,658	1,581,600	1,487,145	731,661*	15,120,286

* Not including special war expenditure.

shortage of shipping which embarrassed both exporters and importers and interfered with local business. At the end of 1918, however, conditions improved and the freight rates between Europe and the United States were reduced about 50 per cent.

The annual report of the New Zealand Railways, for the year ended Mar. 31, 1919, showed earnings of £4,988,632, as compared with £4,687,700 in 1917-1918. Expenditure was £3,308,575, as against £3,042,907, and net receipts £1,680,057, as compared with £1,644,793. The gross receipts per train mile were 160d., as against 150.5d. It was stated that the prospects when normal conditions were fully restored were very bright.

FINANCE. Revenue for the year ending March 31, 1918, was \$98,333,575 as compared with \$89,385,667 for the previous year; expenditures, \$73,582,877 compared with \$60,797,056 for the previous year. The following table shows the items of revenue for the calendar years 1917 and 1918:

Sources of revenue	1917	1918
Customs	\$16,306,790	\$17,691,582
Stamp and death duties...	8,242,468	10,274,637
Post and telegraph	9,172,472	9,762,282
Land tax	5,709,767	8,175,628
Income tax	21,859,408	27,750,058
Beer duty	1,048,453	1,292,888
Railways	22,065,431	23,510,105
Registration, etc., fees	483,516	518,642
Marine	187,224	176,114
Miscellaneous	3,418,035	4,873,050
Territorial	1,006,334	987,535
National endowment	489,049	529,597
Other	194,942	340,721
Total	\$90,183,889	\$105,882,890

Revenue receipts for the calendar year 1918 showed a gain of \$15,698,950 as compared with 1917. The income tax made a gain of \$5,890,650. A new loan was demanded by the government in April, 1919, for \$48,665,000 at 4½ per cent. In general financial conditions since 1919 were reported to be sound, but there was a need of heavy outlay in the future to meet the interest and pension demands. The interest demand was

ARMY. Before the war the territorial force was about 300,000 strong. In 1916 conscription was introduced and during the war the number of men of all ranks who went over seas was 99,650. The casualties down to October, 1918, were over 52,000 including 14,500 killed or dead, and 37,000 prisoners.

GOVERNMENT. The government consists of a governor-general and a General Assembly of two chambers, the Legislative Council and the House of Representatives. The governor-general may veto measures and send drafts of bills to the Assembly for consideration. The Legislative Council has 38 members holding office for seven years, and the House of Representatives 80 members elected by the people for three years. The governor-general at the beginning of 1919 was the Earl of Liverpool, and the prime minister, appointed August 7, 1915, was W. F. Massey.

NICARAGUA. The largest of the six Central American states. Capital, Managua.

AREA AND POPULATION. The estimated area is 49,552 square miles, but it is sometimes placed at the lower figure of 49,200. The population which is principally Mestizo and Indian was estimated on Dec. 31, 1917 at about 800,000 as against 689,891 on Dec. 31, 1913. Fully three-fourths of the inhabitants live in the western half of the country. The chief towns with their estimated populations are Leone, 62,569; Managua, 48,367; Grenada, 25,000. A law providing for a new census was passed in 1919.

EDUCATION. The number of elementary schools has been placed at 356 and the secondary schools at 10. There are three universities, namely at Managua (the Central university), Leone (the Western and Northern university), and Grenada (the Western and Southern university). The state supports a number of normal schools. There is an industrial, commercial and scientific museum at Managua.

PRODUCTION AND COMMERCE. During the year 1919 important discoveries of asphalt and coal resources were reported. Contracts were formed during the year for the carrying out of geological survey of the petroleum resources. The following information in regard to the foreign trade

for 1918 is supplied by the *Pan-American Union*: The foreign trade of Nicaragua for the year 1918, in values, amounted to \$13,684,743, a gain of \$1,316,419 as compared with 1917. There was a decrease in imports of \$463,265—from \$6,393,068 in 1917 to \$5,929,803 in 1918; and an increase in exports of \$1,779,684—from \$5,975,256 in 1917 to \$7,754,940 in 1918, together showing a net increase as above.

The chief countries of export were: United States, \$6,412,921; Mexico, \$965,977; Panama, \$90,143; and Canada, \$79,850. The principal articles of export were: Coffee, \$2,249,056, all of which, except about \$26,000 worth, was exported to the United States; cabinet woods, \$1,431,640, nearly all to the United States. The chief cabinet wood was mahogany, accounting for more than 90 per cent of the total exports. Cedar, guayacan, and genizaro accounted for nearly all the remainder. Gold, \$1,245,484, in bars, amalgams, concentrates, precipitates, etc., the total to the United States. Sugar, \$742,077, of which \$642,871 to Mexico, nearly \$80,000 to Canada, and about \$19,000 to Panama. Bananas, \$535,042, all to the United States. Hides and skins, \$316,332, all, except less than \$100, to the United States. There was an increase in the value of coffee exported of nearly \$500,000 as compared with the preceding year; an increase in the value of cabinet woods, of over \$125,000; in gold, of \$320,000; and in sugar, of over \$500,000. There was a decrease in the value of hides and skins exported, of over \$206,000. The exports to Mexico, amounting to 12 per cent of the whole in 1918, was entirely a new trade, and was due to the export of sugar as above, and of beans, corn, and lard. The export of corn to Mexico amounted to \$208,969. The principal countries of import were: United States, \$4,630,457; United Kingdom, \$596,809; France, \$154,324; Chile, \$139,789; and Panama, \$138,559. The principal imports were: Cotton goods, \$1,580,037, the chief items of which were piece goods, \$1,069,814; of which \$580,694 from the United States, \$165,558 from the United Kingdom; ready-made clothing, \$72,982, practically all from the United States; and thread \$62,708, about two-thirds from the United Kingdom and most of the remainder from the United States. Of the other items under cotton goods, \$180,192 from the United States and \$55,733 from the United Kingdom. Manufactures of iron and steel, \$709,990, nearly all of which was from the United States. Wheat flour, \$356,705, of which \$139,789 from Chile, \$138,559 from Panama, and \$62,727 from the United States. The flour imports from Chile and Panama, the latter a transit trade, represent the total imports from these two countries. Hides and skins and manufactures, \$358,355, consisting of leather, \$213,194, and boots and shoes, \$130,144, all of which, except less than \$1000, came from the United States.

SHIPPING. There are five seaports: In the west are Corinto, San Juan del Sur, through which two-thirds of the imports and three-fourths of the exports pass; in the east, Bluefields, Cape Gracias a Dios, Las Pallas, and Greytown. The shipping in 1917 at these five ports comprised 932 vessels of 377,656 tons.

RAILWAYS. In 1919 a new railway was projected from a point on the Cuculaya River, along the course of the Bambana and the Oconguas with a total length of 75 miles and 40 miles

had already been constructed. The road was expected to benefit greatly the southern part of the republic by the admitting of rapid transportation to the Atlantic. Preparations were also made for the completion of railways under process of construction from Managua to Matagalpa and from Port Diaz to Bluefields.

FINANCE. The Budget for 1918 balancing according to an English authority at £291,998, was adopted on Dec. 31, 1918, for the following year.

The total debt was on Dec. 31, 1917, £1,237,644, of which the internal debt amounted in September, 1916, to 10,000,000 cordovas. The surplus created by the taxes for 1918 was set aside for the payment of the debt which was materially reduced during the year 1919.

President in 1919, General Emiliano Chamorro.

NICKEL. During 1919 there was but comparatively little nickel produced owing to the lack of demand following post-war conditions. The Sudbury district of Ontario, and especially the Creighton mine, furnished approximately 80 per cent of the world's nickel in the form of sulphide ores which are treated in large measure at the Copper Cliff, Ont., plant of the International Nickel Co., whose smelter was said to handle about 60 per cent of the metal that goes into commerce. This plant had been increased for war needs, but with the slackened demand it was maintained in 1919 on a reduced basis so that as calls came it was able to meet requirements. These increased by the end of the year so that the plant worked on a pre-war scale or at about 55 per cent capacity with a production for December of some 3500 tons of 80 per cent copper-nickel matte which was refined at the company's refineries. In the United States and Canada metallurgical methods were not changed materially during the year though experiments with flotation processes were tried on Sudbury ores. A new smelter for the British America Nickel Co. was under construction at Nickelton, Ont., during the year to treat the ore from the Murray mine, smelting the ore and shipping the white metal thus obtained to Deschene, Quebec, for Electrolytic refining. An interesting development of the year was the manufacture of nickel-copper-steel direct from the Sudbury nickel ores. This was known as the "Nieu" process and was applied to small ordnance which was thoroughly tested and accepted by the British government. Plans were under way for the commercial working of the new process and the preliminary treatment of the ore was to be done in the Sudbury district and the final smelting by electric methods at some point where there was cheap power. There was an increased tendency to use nickel not only in steel for motor cars and other purposes but also in a greater number of alloys. Nickel coinage also attracted more attention during the year. Pure nickel coins had been used in Austria-Hungary since 1892, and also were employed in Italy, France, Siam, Switzerland, and Turkey, being hard and of fine color, but the metal afforded difficulties in minting. This hardness, however, gave the advantage of good wear. Coins of nickel bronze were in use in Argentina, Belgium, Brazil, Bulgaria, Egypt, Germany, India, Japan, Korea, Persia, Rumania, Switzerland, United States, Uruguay, and several other countries. They had been minted in London for many years for use in Jamaica, West and East Africa, Ceylon, and British Honduras. In view of the shortage of

subsidiary coinage in Great Britain, a proposition to use nickel for coinage in the United Kingdom and to a greater extent than heretofore in India and other British dependencies was advanced. If this was carried out, there would be involved the increased utilization of an important British product, for as stated above four-fifths of the world's supply of nickel is produced from ores mined and smelted in Ontario, Canada, and the only other important producer is the French new colony of Caledonia. See **SILVER**.

NIGERIA, COLONY AND PROTECTORATE OF. A British possession in West Africa consisting of the old protectorate of Northern Nigeria along with the former protectorate of Southern Nigeria. The three chief divisions of the country comprise the colony itself (area 1400 square miles); the Northern Province (area 255,700 square miles); and the Southern Province (78,600 square miles). The government schools in 1917 numbered 13 and there were besides 46 unassisted private schools, the average attendance at both being about 1830. The number of Mohammedan schools was over 24,000 with over 200,000 pupils. In 1917 the legal status of slavery throughout the protectorate was abolished and by that time the slave traffic had been virtually suppressed by native rulers. In the northern province 7212 slaves were freed in 1917. Among the most important products is palm oil which is extracted from the oil palm. Palm kernels are produced in large amounts. From the raw products of the oil palm are obtained edible oils, fats, meal, margarine, soap, glycerine, etc., and other oil products are obtained from the benne seed (sesame). There is a considerable production of hides and skins of which the centre of trade is Karo. The foreign trade in 1918 exclusive of specie totaled \$82,406,338 as against \$65,347,446 in 1913 and it was nearly five times as great as it had been in 1900. The imports amounted to \$36,121,092 and the exports \$46,285,246 (exclusive of specie in each case). The principal articles according to value in 1918 in imports were, cotton piece goods, coopers' stores, yams, bags and sacks, railway material. The principal exports were palm oil and palm kernels. The chief participants in the export trade of Nigeria in 1918 as in the years immediately preceding were: United Kingdom (83.8 per cent), and the United States (11.53 per cent). In the export trade in 1918 the United Kingdom received 90.8 per cent and the United States 6 per cent. The revenue for 1917 \$3,492,738; expenditures \$3,219,957; the debt £8,470,593 and the shipping entered and cleared in 1917 had a tonnage of 939,159 of which 883,448 was British. In 1917 there were 975 miles of railway open for traffic. On Jan. 1, 1914, the executive commission of the colony became the executive council of the protectorate also. In addition to this council there is an advisory and deliberative body called the Nigerian Council composed of the Governor, the members of the executive council and others. Governor at the beginning of 1919, Sir Hugh Charles Clifford.

NITROGEN. See **CHEMISTRY, INDUSTRIAL**.

NITROGENOUS FERTILIZERS. See **FERTILIZERS**.

NOBEL PRIZE. The board of directors of the Nobel Prize which has charge of the funds of the institute has its headquarters at Stockholm, Sweden. The value of the prize is on the

average about \$40,000. In 1919 the prize was awarded to Professor Stark, a German.

NON-PARTISAN LEAGUE. See **NORTH DAKOTA**, paragraph on *Politics and Government*.

NORFOLK. See **DOCKS AND HARBORS**.

NORFOLK FESTIVAL. See **MUSIC, Festivals**.

NORTH CAROLINA. POPULATION. The population of the State in 1910 was 2,202,287 and on July 1, 1919, it was estimated to be 2,497,668, a gain during the twelvemonth of 29,000.

AGRICULTURE. The following table is issued by the Federal Department of Agriculture.

Crop	Year	Acreage	Prod. Bu.	Value
Corn	1919	2,900,000	55,100,000	\$101,935,000
	1918	3,030,000	68,630,000	112,625,000
Oats	1919	322,000	3,767,000	3,993,000
	1918	300,000	5,100,000	5,508,000
Wheat	1919	850,000	7,225,000	16,834,000
	1918	900,000	6,300,000	14,490,000
Tobacco	1919	554,000	310,240,000 a	166,289,000
	1918	468,000	329,940,000 a	115,809,000
Hay	1919	800,000	1,040,000 b	25,168,000
	1918	640,000	768,000 b	16,128,000
Peanuts	1919	116,000	4,756,000	11,605,000
	1918	145,000	5,800,000	12,006,000
Cotton	1919	1,568,000	875,000 c	154,000,000
	1918	1,600,000	898,000 c	118,504,000
Potatoes	1919	58,000	4,930,000	8,036,000
	1918	65,000	6,175,000	8,336,000
Sweet Potatoes	1919	106,000	9,858,000	13,604,000
	1918	95,000	10,450,000	13,794,000

a Pounds. b Tons. c Bales.

TRANSPORTATION. The total railway mileage of the State in 1919 was approximately 4997. The longest roads were the Southern Railway, and the Atlantic Coast Line.

CHARITIES AND CORRECTIONS. The State maintains the following institutions: Hospitals, at Morganton, Raleigh, Goldsboro; Prison, at Raleigh; Caswell Training School for Feeble-Minded, at Kingston; Schools, for White Blind at Raleigh, for Colored Blind and Deaf at Raleigh, and for White Deaf at Morganton; Confederate Soldiers' Home, at Raleigh; Samarcand Manor, a home and industrial school for women.

FINANCE. According to the report of the State Treasurer, for the biennium ending Dec. 1, 1918, the receipts amounted to \$12,665,351 and the disbursements were \$11,850,430. The balance on hand on Dec. 1, 1916 was \$224,623, two years later it was \$1,039,543. On Dec. 1, 1918, the outstanding debt of the State was \$9,393,900. The State has invested in turnpike and railroad companies \$4,943,447, having a controlling interest in the N. C. R. Co., and the Atlantic and N. C. R. Co.

OFFICERS. Governor, Thomas W. Bickett; Lieutenant-Governor, O. Max Gardner; Secretary of State, J. Bryan Grimes; Treasurer, B. R. Lacy; Auditor, W. P. Wood; Attorney-General, J. S. Manning.

JUDICIARY. Supreme Court: Chief Justice, Walter Clark; Associate Justices, Platt D. Walker, George H. Brown, William A. Hoke, W. R. Allen; Clerk, Joseph L. Seawell.

NORTH CAROLINA, UNIVERSITY OF. A State institution of learning, founded in 1795 at Chapel Hill, N. C. The summer session of 1919 numbered 921 students, and the fall term, 1316. The members of the faculty are 105 in number. The library contains 85,000 volumes. A new building for physics and engineering is in course of construction. H. W. Chase, Ph.D., was chosen

to succeed President Edward K. Graham, who died in October, 1918.

NORTH DAKOTA. POPULATION. By the federal census of 1910 the population of the State was 577,056; by the State census of 1915, it was 636,994; and on July 1, 1919, it was estimated by the federal Bureau of the Census to be 817,554, a gain during the twelvemonth of 26,000.

AGRICULTURE. The following table is compiled from a report of the Federal Department of Agriculture.

Crop	Year	Acreage	Prod. Bu.	Value
Corn	1919	508,000	16,764,000	\$ 23,470,000
	1918	484,000	9,196,000	11,955,000
Oats	1919	2,400,000	38,400,000	25,728,000
	1918	2,575,000	60,512,000	36,912,000
Barley	1919	1,300,000	14,950,000	16,146,000
	1918	1,734,000	37,281,000	27,215,000
Wheat	1919	7,770,000	53,613,000	129,207,000
	1918	7,770,000	105,672,000	214,514,000
Rye	1919	1,945,000	15,560,000	18,828,000
	1918	1,900,000	19,950,000	28,928,000
Hay	1919	605,000	a 908,000	12,803,000
	1918	550,000	a 605,000	8,833,000
Potatoes	1919	90,000	5,670,000	9,072,000
	1918	92,000	9,108,000	6,649,000

a Tons.

TRANSPORTATION. The total main line trackage of steam railroads in the State on June 30, 1918, was 1445 miles; there were 358 miles of secondary main line, and 3404 miles of branch lines, with 1009 miles of sidings, etc. The longest roads were the Northern Pacific, the Great Northern, and the Minneapolis, St. Paul, & Sault Ste. Marie.

EDUCATION. The school population in 1918 was 200,532, and the enrollment was 162,572, with an average attendance of 114,582. There were 7712 teachers in 1918. Their average monthly salary was \$45.70, on a 12-month basis.

CHARITIES AND CORRECTIONS. The Legislature of 1919 created the Board of Administration, which at once assumed the duties of the Boards of Regents, of Control, and of Education. This is the result of 10 years' labor, looking toward a concentration and centralization of control of all State institutions, charitable, reformatory, educational, and penal. In October parts of the Act creating this Board were upheld by the State Supreme Court, as not unconstitutionally interfering with the constitutional office of the Superintendent of Public Schools. Since the organization of the Board shortly after July 26th, the day on which the bill became a law, they have pursued a vigorous policy, publishing late in the year a report covering the period from July 26th to October 31st. The following table gives statistics, as of the last date, for the charitable and penal institutions of the State.

Institution	Location	Population	Appropriation
Reform School	Mandan	66	\$308,960
Penitentiary	Bismarck	148	286,281
Hospital for Insane	Jamestown	1243	330,465
School for the Deaf	Devils Lake	110	91,702
Institution for Feeble Minded	Grafton	276	223,555
School for the Blind	Bathgate	85	
Tuberculosis Sanatorium	Dunseith	75	181,250

LEGISLATION. The following is a digest of some of the more important laws enacted by the 16th Legislative Assembly, in 1919, as listed in an interesting pamphlet issued by the Industrial

Commission of the State: *Acts relating to "State Economics and Industries"*: an act creating an Industrial Commission, authorizing it "to conduct and manage on behalf of the State certain utilities, industries, enterprises, and business projects." This Commission is composed of the Governor, the Attorney-General, and the Commissioner of Agriculture and Labor, with the Governor as Chairman. It is empowered to operate and control all utilities, etc., now or hereafter "established, owned, or operated" by the State, except those of penal, educational, or charitable institutions. It is given wide powers of control, including that of eminent domain, investigation with compulsory summons of witnesses, fixation of prices of property incident to the said industries, the securing of necessary funds by issuance of bonds under law, and other similar powers. An act approved the same day provided for the establishment and operation of a State Bank and banking system "for the purpose of encouraging and promoting agriculture, commerce, and industry." An issue of \$2,000,000 bonds of the State for this venture was authorized. It was further enacted that whenever first mortgages upon real estate shall be held by the State Bank to the amount of \$100,000, the Manager of the Bank may assign them to the State Treasurer in trust as security for bonds to be issued by the State "for the purpose of making delivery to the Industrial Commission . . . to the end that the . . . Commission may . . . procure necessary funds for the Bank . . . thus replacing in the Bank the funds employed by it from time to time in making loans upon first mortgages of real estate." There was also passed an act establishing the North Dakota Mill and Elevator Association, a publicly owned and operated warehouse, elevator, and flour mill system. Bonds for this purpose were authorized. In addition, a Hail Insurance system was established, and a system of providing homes for residents of the State, under the name of the Home Building Association.

Under the head of Laws Relating to Conditions of Labor, the State has established a workmen's compensation fund, with definition of employer's liability; an eight hour day and a minimum wage for women; the inspection of coal mines; a drastic law limiting the issuance of injunctions in labor disputes (in which law there is the following interesting provision—"nor shall any of the acts specified in this . . . be considered or held to be illegal or unlawful in any court in this State"); compelling a full train crew upon the common carriers within the jurisdiction of the State.

North Dakota in 1919 established an income and an inheritance tax. Cities are under certain restrictions permitted to employ city managers. And a Board of Administration was established to manage all State Penal, Charitable, and Educational institutions, with provision for a unification of the latter. Early in 1920 the State is to vote upon a proposed amendment to the Constitution, providing for the recall of Congressional, State, County, Judicial, and Legislative Officers.

POLITICS AND GOVERNMENT. The most important feature of the political record during the year was the referendum of the legislative programme of the Non-Partisan League. The issue according to the members of the League was the question whether henceforth the power of the

State was to enhance the interests of the producing class. They had all been passed by the Legislature during the 1919 session and signed by the government, but at the demand of the opposition a referendum election was held on June 26, 1919. The list of the measures together with the votes, for and against is as follows:

	Yes	No
1. Bank of North Dakota	61,495	48,239
2. Industrial Commission	61,188	50,271
3. Tax Commission	60,412	50,316
4. Judicial Redistricting	60,343	49,925
5. Board of Administration	59,749	51,894
6. Printing Commission	59,364	52,450
7. Commissioner of Immigration ...	59,421	52,156

The bank and industrial laws passed in 1919 are described in the preceding paragraph. The tax commission measure abolished the commission of three members and set up a single tax commission in their place. The judicial redistricting bill changed the district system for the State in order to facilitate the work of the State courts. The board of administration bill put an end to the three State boards and created a single board to take their place, thus substituting a commission of five for the three boards which comprised 20 members. The printing bill required one instead of three official county papers in each county, etc. The campaign was a bitter one and abounded in accusations against the League including the charge that the Industrial Commission had been empowered by the Legislature to take farms and other property away from the owners.

In the elections the larger cities and the northern and western counties showed gains for the League but it sustained losses among the farmers of the western counties on account of the fear of increasing taxation. The largest majorities as may be seen from the above returns were given to the Industrial Commission bill and the Bank of North Dakota bill, both of which were essential to the execution of the League programme. Shortly before the election namely on June 23 the President of the Non-Partisan League, Mr. A. C. Townley, and the former general manager of the organization department of the League were brought to trial at Jackson, Minn. They were charged with having violated the State sedition law and after three weeks they were both found guilty. The trial gave rise to the bitterest recriminations.

As to the strength of the Non-Partisan League, it claimed at the close of 1918 to have a membership in North Dakota of 35,062. Outside of North Dakota the membership claimed by the League was as follows: Minnesota, 50,162; South Dakota, 24,669; Montana, 21,550; Nebraska, California, Washington, Texas, Wisconsin, Kansas, Iowa, Oklahoma, and Idaho, 56,922. See MINIMUM WAGE; WORKMEN'S COMPENSATION.

OFFICERS. Governor, Lynn J. Frazier; Lieutenant-Governor, Howard R. Wood; Secretary of State, Thomas Hall; Auditor, Carl R. Kositzky; Treasurer, Obert A. Olson; Superintendent of Public Instruction, Minnie J. Nielson; Commissioner of Insurance, S. A. Olsness; Bank Examiner, O. E. Lofthus; Director-General, State Bank, F. W. Cathro.

JUDICIARY. Supreme Court: Chief Justice, A. M. Christianson; Associate Justices, J. E. Birdzell, R. H. Grace, J. R. Robinson, H. A. Bronson; Clerk, J. H. Newton.

NORTH DAKOTA, UNIVERSITY OF. A co-educational State institution at Grand Forks, N. D. (post office, University, N. D.). The enrollment for the summer session was 215, and for the fall, 1088, including 131 in the high school. The faculty numbers 89. Endowment of the university is \$2,015,150, and the income therefrom is \$64,000. During the year a new chemistry building and an armory were completed. The university includes colleges of arts, education, engineering, law, medicine, and the graduate and high schools. The institution was founded in 1883. President, Thomas Franklin Kane, Ph.D., LL.D.

NORTHERN TERRITORY. A territory of the Australian Commonwealth situated in the central and northern part of the continent; formerly part of the state of South Australia but transferred to the Commonwealth Jan. 1, 1911. Area, 523,620 square miles; population, estimated June 30, 1918, 5269, excluding aborigines, who were estimated at about 20,000. Capital, Darwin, with a population in 1911, of 958. See AUSTRALIA.

NORTHWESTERN COLLEGE. A co-educational institution at Napierville, Ill., supported by the Evangelical Association, but non-sectarian in its requirements. Its enrollment for 1919 was as follows: College, men, 193, women, 129; academy, men, 33, women, 17; other schools, 49; total, 423. There were 30 members in the faculty, additions of the year including professors of physics, and military science. The endowment is \$256,695, and the income for the year was \$54,018. The library contains 14,500 volumes. During the year an apportionment of \$750,000 in the \$2,500,000 Forward Movement was received. The Evangelical Association for the next five years is conducting a campaign, \$500,000 for additional endowment, \$100,000 for a chapel building, \$150,000 for a girls' dormitory, the latter building to begin at once. The college was founded in 1861 and incorporated in 1876. President, Edward Everett Rall, Ph.D.

NORTHWEST PROVINCES. The Prairie Provinces of Canada. See CANADA.

NORTHWEST TERRITORIES. That part of Western Canada which is bounded on the west by Yukon Territory and separated by the 60th parallel from British Columbia and the Prairie Provinces, on the south. The area is estimated at 242,224 square miles; population (1911) 5900.

NORWAY. A constitutional monarchy in northwestern Europe; formerly united with Sweden but separated on June 7, 1905; forming the western and northern part of the Scandinavian peninsula, with an extreme length of 1100 miles and an extreme width of 250 miles. It is generally a barren and mountainous country and large continuous tracts of cultivable land do not exist. It is estimated that 75 per cent of the area is unproductive, 21.5 per cent under forests, and only 3.5 per cent under cultivation. It is divided into 20 provinces or amter. Area, estimated at 24,643 square miles; population, Dec. 1, 1910, 2,391,782; estimated Jan. 1, 1918, 2,632,010. Capital Christiania, with an estimated population on Dec. 1, 1918, of 259,445. The movement of the population in 1917 was as follows: Births, 64,930; deaths, 34,063. The total emigration in 1917 was 2518 of whom 2344 went to the United States. The national church is Lutheran which is endowed by the state and in 1910 there were only 62,553 dissenters. The

other denominations and churches being the Free Lutheran Church with 15,287; Methodist with 10,986, and Baptist with 7659. Professors of all religions are tolerated with the exception of Jesuits. Education is compulsory. The number of public elementary schools in 1915 was 6130 with 283,136 pupils in the country, and 3345 with 98,876 pupils in towns. The university at Christiania had an attendance in 1915 of 550.

PRODUCTION. According to the registration of Sept. 30, 1917, the number of farms was 246,634, of which 142,930 had an area of two hectares or less. No later figures in detail were available than those given in the preceding **YEAR BOOK**. (See also the article **AGRICULTURE**.) The live stock on June 20, 1918, were as follows: Cattle, 1,053,743; sheep, 1,216,291; horses, 220,900; swine, 224,803; goats, 203,852. The chief natural sources of wealth are forests and fisheries. The area under forests is estimated at 26,685 square miles of which 75 per cent is pine; and the state forests cover about 3060 square miles. The department of forestry was organized in 1857 and since that date the income to the country from the forest has amounted to \$1,474,000. On the average the fish catch makes up about half of the total annual export values. In 1915 92,865 persons were engaged in cod fisheries; 20,874 in summer-herring fisheries; 4489 in mackerel fisheries. The total value of fisheries in 1918 was 85,292,024 kroner. The most important mineral product is pyrite. There are valuable deposits of iron ore, but smelting is retarded by the lack of coal. The chief mineral products besides pyrites are silver, copper ore, iron, felspar, and nickel ore. There were about 87 mining establishments in 1916. There is considerable manufacturing for although the country lacks coal, it has abundant water power which has for the most part been employed in the production of electro-chemical products—a growing industry. According to figures published at the beginning of 1917 there were 6886 manufacturing establishments employing a total of 161,772 persons.

COMMERCE. In 1916 the leading countries in respect to the value of imports into Norway were in the order of their importance: America, Great Britain and Ireland, Germany, and Sweden. Chief among the countries to which goods were exported were Germany, Great Britain and Ireland, Russia, France, and America. The total value of the imports in 1916 was 1,353,664,900 kroner; of the exports 988,333,000 kroner; and the chief classes of imports in their order of value in 1916 were: Vessels, carriages and machinery, etc.; unwrought minerals; bread stuffs; textile manufactures, etc. Leading articles of export were animal produce; timber and wooden goods; manufactured minerals and tallow, oils, tar, etc. The chief products imported into Norway in 1919 were rye, rye flour, wheat flour, coffee, sugar, meat, dairy products, and Indian corn. The following table shows the imports of food during the first nine months of 1919 and 1918.

Commodity	First nine months of—	
	1919 Kilos	1918 Kilos
Beef	3,486,700	3,727,841
Pork	9,862,459	544,754
Cheese	1,386,386	96,086
Butter	2,681,679	1,066,695
Eggs	1,649,663	747,898
Indian corn	8,106,986	1,180,101

Commodity	First nine months of—	
	1919 Kilos	1918 Kilos
Rye, whole	66,100,400	17,618,800
Rye flour	12,212,100	24,133,400
Wheat flour	30,797,100	18,069,000
Coffee	22,456,956	4,912,028
Tea	242,429	53,152
Sugar	52,925,425	25,232,456

RAILWAYS. The state railways on Jan. 1, 1917, had a mileage of 1719; private lines 290, total 2009.

SHIPPING. The following information in regard to the shipping in 1919 was supplied by the United States Bureau of Foreign and Domestic Affairs on the basis of official Norwegian figures: During the year there was a decrease of 40 steam vessels with a total of 35,041 gross registered tons, 48 motor vessels with a total of 6714 tons, and 96 sailing vessels of 29,749 tons, making a total of 193 vessels representing a total of 71,504 gross registered tons. Three steamers were wrecked as a result of operations of war, 13 steamers, 26 motor vessels, and 12 sailing vessels were wrecked by the ordinary dangers of the sea. Three steamers, 1 motor vessel, and 2 sailing vessels were condemned as unfit for further use. Twenty-eight sailing vessels with a total of 2225 tons were dismantled or destroyed. Thirteen steamers of 12,094 tons, 5 motor vessels of 983 tons, and 9 sailing vessels of 7965 tons were sold abroad. The increase in the merchant marine amounted to 155 steamers of 163,641 tons, 285 motor vessels of 59,017 tons, and 16 sailing vessels of 3707 tons, making a total of 416 vessels of 226,365 tons. On Jan. 1, 1919, the Norwegian merchant marine consisted of 1759 steamers of 1,504,432 tons, 1146 motor vessels of 112,687 tons, and 563 sailing vessels of 279,294 tons, making a total of 3441 vessels of 1,896,413 tons. On Jan. 1, 1920, the fleet included 1825 steamers of 1,633,032 tons, 1383 motor vessels of 164,990 tons, and 456 sailing vessels of 253,252 tons, making a total of 3664 vessels of 2,051,274 tons. The net increase in the Norwegian merchant marine during the year 1919 is 223 vessels of 154,861 tons.

FINANCE. The budget for 1918-19 was as follows: Revenue, 624,891,900 kroner; expenditures, 624,891,900. The debt on June 30, 1917, was 455,504,598 kroner.

GOVERNMENT. Norway is a constitutional hereditary monarchy whose executive power is vested in a king who governs through a council of state. Legislative power is vested in a parliament or storting elected on the basis of universal suffrage without distinction of sex. Comprising in 1919, 126 members. The King is Haakon the 7th (born Aug. 31, 1872) who was elected king Nov. 18, 1905. The composition of the Storting in 1919 according to political parties was as follows: Liberals, 52; Conservatives, 39; Moderate Liberals, 10; Socialists, 18; Agricultural Party, 3; Democrats, 3; Independents, 1.

The ministry in 1919 was constituted as follows: Premier and Minister of Agriculture, Gunnar Knudson; Ministry for Foreign Affairs, Nils Claus Ihlen; Ministry for Finance, A. Omholt; Ministry for Labor, Haakon Hauan; Ministry for Commerce, Navigation, Industry, and Fisheries, Birger Stuevold-Hansen; Ministry for Defense, General Aatsvatmark; Ministry for Worship and Instruction, Jorgen Lovland; Ministry of Public Works, Frederik Anton Mar-

tin Olsen Nalum; Ministry for Provisioning, M. Five; Ministry for Social Affairs, M. P. Berg.

The same sort of disturbances occurred in Norway during the year as in other European countries and there was much fear of the spread of Bolshevism. On June 10th the Norwegian Labor Party took the same course as that of the Swedish Independent Socialists. They also passed a resolution calling upon the government to provide asylum for political fugitives.

NORWEGIAN LITERATURE. See SCANDINAVIAN LITERATURE.

NOTRE DAME, UNIVERSITY OF. A Roman Catholic institution for the education of men, located at Notre Dame, Ind.; Founded in 1842. President, Rev. John Kavanaugh, D.D., C.S.C.

NOVA SCOTIA. One of the Maritime Provinces of Canada. Capital, Halifax, the chief naval station of Canada. Estimated area, 21,428 square miles of which 360 are under water; population in 1911, 492,338. Population of Halifax (1911), 46,619, and of the next largest city, Sydney, 17,723. The main occupation is agriculture. There is a profitable fruit industry, apples being the most important crop; and potatoes of a superior quality are raised. In 1918 there were 407,000 cattle in the province and the annual wool clip averages 10,000,000 lbs. Executive power is in a lieutenant-governor, appointed for five years by the Governor-General of Canada, and acting through a council or responsible ministry; legislative power is in an assembly of two chambers, namely the legislative council of 21 members appointed by the Crown and holding office for life, and the House of Assembly of 43 members chosen by popular vote for five years. At the beginning of 1919 the House of Assembly was distributed among political parties as follows: Liberals, 30; Conservatives, 13. Down to that time the Liberals had held the power continually for 36 years. Lieutenant-Governor in 1919, J. McC. Grant; Prime Minister, G. H. Murray. See CANADA.

NOVELLI, ERMETE. Italian actor, died at Rome, January 29. He was well known in the United States, where he made a successful tour in 1906. He was born in 1851, the son of a prompter in a traveling troupe of Italian players, and went on the stage in his boyhood, playing always in the comic parts, owing to his somewhat grotesque appearance. He achieved success at an early age, and became chief of his troupe in 1884. His reputation soon spread throughout the Latin countries in Europe and in South America. He determined in spite of ridicule and opposition to succeed in serious and even tragic parts, and he eventually became known as one of the best interpreters of such rôles as *Shylock*, *Louis the XI*, *Othello*, etc. He was the founder of the Casa Goldone, an Italian theatre formed on the model of the Comédie Française. He was the subject of high praise from some of the most serious critics of the day, by whom his playing was described as broad, vivid, and forcible, rather than subtle, and minute. He was especially admired for its versatility.

NOYES, HENRY ERASTUS. Brigadier-general, United States army, died at Berkeley, Cal., July 14. He was born in Belfast, Me., Aug. 23, 1839, and graduated at the United States Military Academy in 1861. He took part in the battles of Bull Run, South Mountain, Antietam, and many other battles and engagements, and was

twice brevetted for gallant and meritorious service. After the Civil War he was engaged in Indian warfare and he served in Cuba in 1898. He retired in 1901.

NOYES, LAVERNE W. Capitalist, died in Chicago, Ill., July 24. He was born at Genoa, N. Y., Jan. 7, 1849, and engaged in manufacturing in Illinois in 1876. He soon afterwards began the invention of a series of over 100 mechanical devices, some of which were very successful. He began the manufacture of agricultural implements and later organized the Aermotor Company, of which he was president down to the time of his death. He was a member or trustee of important educational and literary bodies and a generous contributor to them. He presented a building to the Chicago University and endowed many scholarships for the Lewis Institute.

NUTRITION, DISEASES OF. In medical parlance these are known as diseases of metabolism and comprise obesity, diabetes, gout, and others, which are either more doubtful as to their intimate nature or else of less importance. While the corpulent man is often vigorous and of robust subjective health, he is ranked as a kind of invalid when practical tests are instituted. The insurance companies do not accept overweight risks. Horace Fletcher, recently deceased, was declined in middle life for overweight by a leading life-insurance company and this catastrophe was responsible for his propaganda of economy of nutrition by forced mastication. He thereby secured for himself 20 years of usefulness as a teacher and model of proper nutrition, but his death at 69 tends to show, in the absence of any element of accident, that he was not constructed by nature for longevity and that life-insurance selection in his case was in the main justified. A distinction was formerly made between normal and pathological corpulence, but at present all corpulence is regarded as abnormal. We used to hear of "firm" fat as distinguished from "flabby" fat, and well distributed adipose as a foil to asymmetrical deposit of fat. These distinctions hold good only to a limited degree. Fat accumulation from forced feeding, including the consumption of beer is not an asset; is not, as once believed, a reserve to draw on in lean years. Even the gain in weight which follows the emaciation of typhoid fever may be pathological. A Swiss practitioner, Dr. Gigon, who has carefully watched these cases says that exceptionally a subject gets fat where as a rule and by all rights he should emaciate. Tuberculosis and lues, which usually cause rapid emaciation, exceptionally cause obesity. The same is true of severe nervous and mental diseases. Sudden gain in weight and slowly acquired corpulence alike mean that something is amiss in the individual's nutrition. Cases accumulate in which such accumulation is due to disease of the glands of internal secretion, as the gonads, thyroid and pituitary body. The poisonous minerals can cause corpulence, for hogs can be fattened on mercury and the arsenic eaters of Styria are, if not fat—for they lead very active lives and are mountaineers—at least very well nourished. It is when we seek to reduce corpulence by diet and exercise that we realize its intimate nature, for many cases do not react at all to these prescriptions, but are remedied in other ways. The moderate accumulation of flesh which is reducible by proper diet and exer-

cise may be looked on as approximately physiological; but it is not of such examples that we are writing.

Obesity and diabetes are closely allied in many ways and both are fostered in predisposed cases by excessive use of sweets. In this connection the recent passing of alcohol as a beverage has reacted on life insurance in a peculiar fashion. Years ago it became apparent to some actuaries that ex-drinkers did not automatically become improved risks. The reasons were not straight-way apparent. At the present time one reason at least is in evidence, to wit, that the former tippler who had secured an insurance policy would be exposed to the likelihood of drinking inferior illegal spirits or would resort to drugs. The alleged increased consumption of sweets in several forms as a result of prohibition is also regarded with some apprehension by life-insurance companies, because of the likelihood that diabetes, which causes thousands of deaths annually, will increase in frequency. These fears may seem far-fetched and years will be required to show whether or not they are well grounded. In the meantime the companies will doubtless spare no pains to discourage the excess consumption of sweets which tends to swell the ranks of both overweight and diabetics.

NYSSALAND PROTECTORATE. A British protectorate, formerly called Central Africa, situated on the southern and western shores of Lake Nyassa and extending towards the Zambezi River. Area, 39,573 square miles; population (1918), 1,228,579 natives, 715 Europeans, and 422 Asiatics. The seat of government is at Zomba; chief town Blantyre. Coffee is largely produced and tobacco is raised in sufficient quantities for export. There is also a promising development in cotton production. Live stock in 1918 were as follows: Cattle, 93,000; sheep, 40,414; goats, 17,721; pigs, 20,350. Imports 1918-19, £648,569; exports, £504,740; revenue, £187,645; expenditures, £150,198. River steamers communicate with the coast at Chinde which lies at the only navigable mouth of the Zambezi River. There is a railway of 129 miles from Blantyre to Port Herald which has been extended to Zambezi. Governor at the beginning of 1919, Sir George Smith.

OATS. The total yield of oats as reported by the International Institute of Agriculture, Rome, in Spain, France, Great Britain, Italy, the Netherlands, Rumania, Switzerland, Canada, the United States, Japan, and Tunis in 1919 was about 2,087,000,000 bushels or 16.2 per cent less than in 1918 and 9.7 per cent less than the average from 1913 to 1917. From 1909 to 1916 inclusive the world's production averaged over 4,000,000,000 bushels. In 1919 a smaller acreage and to a greater degree a lower average yield per acre were the causes of the reduced production. The Canadian yield was estimated at 424,000,000 bushels, the French at 168,000,000 bushels, and that of Great Britain at 157,000,000 bushels. According to preliminary estimates Argentina, the largest oats-producing country in the southern hemisphere yielded 44,092,000 bushels in the crop-year 1918-19.

Estimates by the Department of Agriculture placed the production of the United States in 1919 at 1,248,310,000 bushels, as against 1,538,124,000 bushels in 1918, and 1,331,287,000 bushels the average in the 5-year period 1913-17. The area in oats in 1919 was 42,400,000 acres

which was 1,949,000 acres under the area of 1918 but 1,817,000 acres above the average acreage for the 5-year period. The average yield per acre was 29.4 bushels as compared with 34.7 bushels the year before and 32.8 bushels for the years 1913 to 1917 inclusive. The average farm value of oats on Dec. 1, 1919, was 71.7 cents per bushel while the corresponding value in 1918 was 70.9 cents, and for the 5-year period 48.3 cents. The total value of the 1919 crop on this basis was \$895,603,000 or \$194,719,000 less than the total value in the preceding year but still \$252,416,000 above the 5-year average. The estimated average weight per measured bushel was 31.1 pounds or 0.9 of a pound under the standard bushel weight.

A severe drought with extreme heat greatly reduced the yields and the quality of oats in Montana and in parts of North Dakota, Alberta, and Saskatchewan, and caused a scarcity of seed oats for the next crop in this region. As based on several thousand estimates in 1918 of the portion of the crop used for feed in the United States 67.8 per cent is fed to horses and mules, 13.2 per cent to cattle, 10.8 per cent to swine, 2.3 per cent to sheep, and 5.9 per cent to poultry.

Studies made by the Missouri Agricultural Experiment Station from 1910 to 1917 inclusive on the cost of producing oats showed that the crop in the bin on the farm cost an average of 42 cents per bushel and \$11.11 per acre. In the last four years of the study the range per bushel was from 35 cents in 1917 to 55 cents in 1916. In 1915 when the cost of production was 51 cents per bushel the farmer received nothing for his labor while for the entire period he received an average of \$1.17 for each 10 hours of labor put on the crop. The highest return for each 10 hours of labor was \$11.40 in 1917.

OBERLIN COLLEGE. A non-sectarian co-educational institution at Oberlin, Ohio. The enrollment in the summer session of 1919 was 162, in the fall it was 1535. There were 175 members in the faculty. The funds of the college amount to \$7,761,303, and the income for 1919 was \$540,000. The library contains 196,000 bound volumes and 158,000 pamphlets. Oberlin was founded in 1833. President, Henry Churchill King, D.D., LL.D., L.H.D.

OCCUPATIONAL DISEASES. The interest in occupational diseases has greatly increased in recent years because of the gradual accumulation of adequate information as to the general prevalence of these diseases. Accurate information concerning these diseases is of great industrial as well as social importance because of the enormous waste resulting from the reduction which they cause in industrial efficiency. The increased interest has manifested itself in attempts to obtain further information as to diseases caused by industrial processes. These attempts have resulted in wide-spread recognition of the very great need for reliable statistics based on physical examination of workers in order that the real industrial conditions of the country might be determined with some degree of accuracy. The chief lines of investigation in this field are concerned with ascertaining: 1 what diseases are due to industrial employment; 2 what conditions or factors of the industrial processes cause the diseases; 3 what safe-guards can be provided which will permit the continuance of the necessary employments without imperiling the health of the workers; 4 what processes may

be substituted for those which are injurious. In addition, the enactment of legislation giving compensation for occupational diseases is increasing. The question of what constitutes an occupational disease has not been settled with finality nor do the lists of occupational diseases for which compensation is provided by law, correspond. Diseases generally included in a list of occupational diseases are: Anthrax, lead, phosphorus, arsenic, mercury, and TNT poisoning, nystagmus, glanders, several miner's diseases, and a number of diseases caused by poisonous fumes and acids.

In the United States, California, Massachusetts, Wisconsin, Connecticut, North Dakota, Hawaii, and the federal government provide compensation for occupational diseases. Massachusetts and the federal government provide compensation for occupational diseases through commissions and courts, while California, Wisconsin, Connecticut, North Dakota, and Hawaii do so through statutes.

Occupational diseases have become compensable in Connecticut, Wisconsin, and North Dakota only during the past year. Wisconsin effected the compensation of industrial diseases by extending the provisions of the original workmen's compensation law, to include, in addition to accidental injuries, all other injuries including occupational diseases growing out of and incident to employment. The Connecticut law includes those occupational diseases due to "causes peculiar to the occupation and which are not of a communicable, contagious, or mental nature." The law also provides that "if an injury arises out of and in the course of the employment it shall be no bar to a claim for compensation, that it cannot be traced to a definite occurrence which may be located in point of time and place." The State compensation commissioners had awarded compensation for occupational diseases under the original workmen's compensational law, but they were over-ruled by the courts. North Dakota in enacting its workmen's compensational law provided compensation for injuries. The workmen's compensation bureau of the State interprets this as including occupational diseases.

Compensations have been awarded in States not providing such benefits, for: anthrax, dermatitis, arsenic poisoning, fume poisoning, occupational neuritis, housemaid's knee, and other diseases, not because the disease suffered was an occupational disease, but because "it satisfied in other respects the requirements of a compensable injury as defined by statute or as interpreted by the court." No States except those mentioned award compensation for diseases which have developed gradually and which are inherent in the employment. In general the courts and commissions grant compensation, 1 if the disease resulted in injuries, such as lesions, to the physical structure of the body; 2 if the injury did not occur in the usual course of events; 3 if the injury can be placed to a definite time and place in the employment; 4 if reasonable safeguards were not provided by the employer against an inherent risk of the occupation, or, 5 if the injury was not due to a known risk of the employment.

PUBLIC HEALTH ASSOCIATION. The American Public Health Association held its 47th annual meeting in New Orleans from Oct. 27-30, 1919. The association is composed of nine divisions:

Health Administration, Laboratory, Sociological, Sanitary Engineering, Vital Statistics, Food and Drug, Industrial Hygiene, Child Hygiene, and Personal Hygiene. "In the section on industrial hygiene, papers were read on health hazards in different industries, such as the effects of non-poisonous dusts, dyes, oils, and compounds; industrial fatigue in general; and physical examinations with reference to their use in placing and classifying employees, as well as in increasing production."

The fourth annual convention of the American Association of Industrial Physicians and Surgeons was held at Atlantic City on June 8, 1919. This association was organized in 1916 by Col. Harry E. Mock of the Surgeon General's Office. Among the significant questions considered were: the increasing recognition of the importance of physical examination of employees; the need for real statistics based on physical examinations in order to facilitate definite conclusions regarding industrial conditions; uniformity in workmen's compensation, legislation including the appointment of a medical adviser to every commission; the possibility of reclaiming men for industry; and the introduction of courses in industrial medicine in medical schools. Papers were also read on: The conservation of the vision of industrial workers through goggles, etc.; a national programme for industrial hygiene and medicine; and proper lighting conditions in factories. "Resolutions presented to the convention on the subject of compensation laws, health insurance, industrial clinics, and artificial respiration were referred to the board of directors with power to act." At the convention Colonel Mock was reelected president of the organization.

The Bureau of Mines has received many inquiries during the past year concerning the use of army gas masks in industries as a safeguard against poisons and irritating gases and dusts. The public has been under the impression that the army gas masks can protect the wearer under all conditions. However, the conditions of the battlefield are quite different from those obtaining in factories. The percentage of gas in the air under field conditions will be much smaller than that in the confined space of a factory operation. In addition the army mask affords no protection against the more common industrial gases such as illuminating, natural, producer, and blast-furnace gas. In view of these limitations of the army gas mask, the Bureau of Mines has issued a brief statement concerning the industrial use and limitations of dust respirators, gas masks, and oxygen-breathing apparatus. In addition, a thousand cubic-foot gas chamber has been installed at the Pittsburgh Experiment Station of the Bureau for research purposes. Results of the investigations will enable the Bureau to give adequate information as to the suitability of army masks for use in various industrial gases and the kind of gas mask required if the army type is inadequate.

The programme of the United States Public Health Service in respect to the after-the-war needs in industrial hygiene is as follows: 1 "Continuation in the extension of health surveys in industry with a view to determining precisely the nature of the health hazards and the measures needed to correct them; 2 securing adequate reports of the prevalence of disease among employees and the sanitary conditions in indus-

trial establishments and communities; 3 national development of adequate systems of medical and surgical supervision of employees in places of employment; 4 establishment by Public Health Service, in cooperation with the Department of Labor, of minimum standards of industrial hygiene and the prevention of occupational diseases; 5 improvement of the sanitation of industrial communities by officers of the Public Health Service, and cooperation with State and local health authorities and other agencies; 6 medical and sanitary supervision, by the Public Health Service, of civil industrial establishments owned or operated by the federal government."

GREAT BRITAIN. The Workmen's Compensation Act of 1906 made provision for compensation of occupational diseases. The compensable diseases were specified in the act and the Secretary of State for the Home Office was given authority to include other diseases. The list of occupational diseases corresponded to that given in the beginning of this article. About 20 diseases have been added to those listed as compensable under the original act and in 1918 poisoning by dinitrophenol and tetrachlorethane were added. Compensation is recoverable from the last employer but he in turn may recover from other employers whose employment within the year contributed to the contraction of the disease. If an employee through contraction of dermatitis or ulceration of the skin is disabled only for employment in the process in which the disease was contracted no compensation is allowed. Under the Factory and Workshop Act certain occupational diseases must be reported to the Home Office. Statistics show that there has been considerable reduction in these diseases. From November, 1917, to November, 1918, there were 243 cases of poisoning and of anthrax reported as compared with 623 cases the preceding year. In 1918 the number of deaths was 25, in contrast to 79 for 1917. In addition 35 cases of lead poisoning among house painters and plumbers were reported for 1917-18 as against 53 cases in 1916.

The prevalence of the more common industrial poisons in Great Britain, is indicated in a recent report covering the period from 1900 to 1918. The figures given in the report show that the number of cases and deaths resulting in lead and mercurial poisoning is steadily decreasing. There has been practically no change in the small number of phosphorus poisonings, showing that ameliorative measures have reached their limit for the present. Few cases of arsenic poisoning have been recorded in recent years except in 1917. War conditions were responsible for this exceptional year. Before the war there were no cases of toxic jaundice but in 1916, 206 cases were reported and in 1917 there were 190 cases. In 1918 there were only 34 cases showing that the disease is being brought under control. Figures for anthrax show a considerable increase in cases but war conditions were partly responsible for this increase.

CANADA. The provinces of Canada have made provisions for compensating occupational diseases very similar to those of Great Britain. Nova Scotia, Manitoba, and British Columbia have copied the British law and schedule of diseases without change. Miner's phthisis has been added to the original list of Great Britain by Ontario and Alberta. New Brunswick has adopted the law but not the schedule. It con-

ferred the discretionary power on the workmen's compensation board to declare what occupational diseases and processes should be legally compensable. The only provinces which do not provide compensation for industrial diseases are Quebec and Saskatchewan.

FRANCE. The results of the extensive studies of industrial poisons, made by experts of the French government during the war, have been placed in the hands of Dr. Roger G. Perkins, consultant in hygiene to the United States Public Health Service. An abstract of the French findings recently published by Dr. Perkins reveals that the explosive which caused the greatest amount of poisoning in the United States and England, trinitrotoluol, gave very little trouble in France. On the other hand, dinitrophenol, a compound produced in manufacturing picric acid, was the source of very serious and fatal poisoning in France. The French records are incomplete because it was necessary to shift constantly, factory physicians and gangs of men from one department to another and from factory to factory. Though the records have not continuity, yet they present very interesting and valuable observations in this field.

ABROAD. Argentina, New South Wales, Switzerland, and the Union of South Africa make specific provisions for compensating industrial diseases. In most foreign countries compensation is provided for through compulsory sickness and invalidity insurance systems. See **WORKMEN'S COMPENSATION; SOCIAL INSURANCE; INSURANCE; and WELFARE WORK.**

OHIO. POPULATION. The population of the State in 1910 was 4,767,121 and on July 1, 1919, it was estimated to be 5,335,543, a gain during the twelvemonth of 61,000.

TRANSPORTATION. The railway mileage in the State in 1919 was approximately 9316.

AGRICULTURE. The following table is compiled from a report of the federal Department of Agriculture, for December, 1919.

Crop	Year	Acreage	Prod. Bu.	Value
Corn	1919	3,700,000	162,800,000	\$196,988,000
	1918	3,600,000	129,600,000	168,480,000
Oats	1919	1,548,000	51,858,000	37,338,000
	1918	1,700,000	74,800,000	52,360,000
Wheat	1919	2,860,000	54,440,000	115,413,000
	1918	2,290,000	43,547,000	92,320,000
Hay	1919	2,879,000	a 3,973,000	86,611,000
	1918	3,025,000	4,235,000	94,017,000
Tobacco	1919	90,000	b 77,400,000	26,084,000
	1918	100,000	98,000,000	19,110,000
Potatoes	1919	150,000	9,300,000	17,856,000
	1918	160,000	11,040,000	16,560,000

a Tons. b Pounds.

OFFICERS. Governor, James M. Cox; Lieutenant-Governor, Clarence J. Brown; Secretary of State, W. D. Fulton; Treasurer, Rudolph W. Archer; Auditor, A. V. Donahey; Attorney-General, John G. Price.

OHIO RIVER IMPROVEMENT. See **INTERNAL WATERWAYS.**

OHIO STATE UNIVERSITY. A co-educational institution under the supervision of the State, at Columbus, Ohio. The enrollment for the summer session of 1919 was 1240; for the regular fall term, 6608. There are 517 members of the faculty, 118 in agricultural extension, 28 in the library force, and 13 administrative officers. Productive funds total \$1,045,321 and the income for the year was \$62,000. The university

was founded in 1872. President, William Oxley Thompson, LL.D.

OHIO UNIVERSITY. A co-educational state institution, founded in 1804 at Athens, Ohio. In the summer school of 1919 there were 1694 students, and in the continuation summer school, 386. In the fall there were 1024 students, and 110 members of the faculty. The productive funds of the university total \$200,000. The income for the year was \$338,162. The library contains 47,340 volumes. President, Alston Ellis, Ph.D., LL.D.

OHIO WESLEYAN UNIVERSITY. A co-educational institution under the auspices of the Methodist Episcopal Church, founded at Delaware, Ohio, in 1844. In the fall of 1919 there were 620 men and 808 women students in the university, 1318 of these being enrolled in the College of Liberal Arts. The faculty contained 63 men and 27 women. Productive funds for 1919: \$1,274,850 endowment, and \$480,294 annuity. Volumes in the library numbered 87,000. President, John Washington Hoffman, D.D., LL.D.

OKLAHOMA. POPULATION. The population of the State in 1910 was 1,637,155 and July 1, 1919 it was estimated to be 2,465,402, a gain during the twelvemonth of 87,000.

TRANSPORTATION. The railway mileage in the State in 1919 was 6532; of this 91.6 miles were built during the year, of new first track. This is more construction than was done in any other State in 1919.

AGRICULTURE. The following table is compiled from a report of the Federal Department of Agriculture.

Crop	Year	Acreage	Prod. Bu.	Value
Corn	1919	3,100,000	74,400,000	\$94,488,000
	1918	3,100,000	23,250,000	38,120,000
Oats	1919	1,500,000	49,500,000	34,650,000
	1918	1,300,000	31,200,000	26,208,000
Wheat	1919	8,760,000	52,640,000	107,912,000
	1918	2,611,000	32,899,000	66,127,000
Hay	1919	700,000	a 1,540,000	23,254,000
	1918	580,000	696,000	13,572,000
Potatoes	1919	44,000	3,520,000	7,216,000
	1918	50,000	1,700,000	3,315,000
Cotton	1919	2,841,000	b 930,000	163,680,000
	1918	2,998,000	577,000	73,553,000
Sorghums	1919	1,440,000	83,120,000	49,680,000
	1918	1,800,000	18,000,000	27,000,000

a Tons. b Bales.

CHARITIES AND CORRECTIONS. The following institutions are maintained by the State: Institute for Feeble Minded, at Enid; School for the Blind, at Muskogee; School for the Deaf, at Sulphur; Training School for Boys, at Pauls Valley; State Orphanage, at Pryor; and Colored Orphans' Home, at Taft.

OFFICERS. Governor, J. B. A. Robertson; Lieutenant-Governor, M. E. Trapp; Secretary of State, Joe S. Morris; Treasurer, A. N. Leecraft; Auditor, Frank Carter; Attorney-General S. P. Freeling.

OKLAHOMA, UNIVERSITY OF. A non-sectarian co-educational State institution, founded in 1892, at Norman, Okla. President, S. D. Brooks, LL.D.

OLD AGE PENSIONS. It is generally conceded that compulsory insurance against old age is a vital part of any programme of social insurance, and most of the industrial nations of the world have adopted legislation providing pensions for superannuated citizens under insurance

schemes, the most effective of which are obligatory. Often old age insurance and invalidity insurance are provided for under one programme. Both of these insurances were made compulsory in Germany in 1889; in Great Britain in 1908, 1911 (old age insurance); in France 1910, 1912 (old age insurance); Luxemburg, 1911; the Netherlands, 1913; Rumania, 1912; Sweden, 1913 (old age insurance); Glarus (Switzerland), 1916; Australian Federation, 1908, 1912; and New Zealand, 1898. Old age and invalidity insurance are compulsory in Austria for workers in mines, and salaried employees, and in Russia for railroad workers. In addition, Belgium, France, Italy, Spain, Canada, and Massachusetts and Wisconsin in the United States, provide for State subsidies or allowances in the case of voluntary old age insurance subject to State control.

THE UNITED STATES. Compulsory old age insurance has never been inaugurated in the United States, although the past few years have seen increasing interest in the problem, and old age pensions have been paid to Federal and State employees, and to the workers in many private enterprises. During the past year the Ohio Health and Old-Age Insurance Commission handed down an extensive study and report, in which Old-Age Insurance in compulsory form was recommended. Legislation was enacted by State legislatures during 1919 relating to the payment of Old-Age Pensions, as follows:—

California. A retirement system is established for county employees. Contributions are required from employees, and after an employee has contributed for 10 years the county is to place to his credit monthly an equal amount. On reaching the age of 60, if the employee has been in service 10 years, otherwise on reaching 70, the employee may be retired on the annuity to which his contributions plus the county contributions, with interest, will entitle him. The plan is to be supervised by the insurance commissioner. (C. 373, in effect July 21, 1919.) Congress is requested to pass the McKellar-Keating bill for pensioning superannuated and disabled civil service employees of the United States (S.J.R.5,C.14. In effect Jan. 25, 1919).

Connecticut. The Board of control is empowered to retire on half pay any one who has been in the State service 30 years and is 65 years old, or for 25 years and is 70 years old. (C.210. In effect, July 1, 1919.)

Illinois. The tax which the park commissioners are authorized to levy so as to be sufficient when added to the contributions of employees to cover the benefits authorized to be paid from the park employees' annuity and benefit fund, must not exceed two-thirds of a mill on a dollar. (S.B. 562. In effect July 1, 1919.) The limit of the tax which cities of over 100,000 are permitted to levy for the support of the municipal employees' pension fund is reduced from one-half to one-third of a mill. (S.B. 437. In effect, July 1, 1919.)

Maine. Heads of State institutions and departments may recommend the retirement on pension of persons employed for 25 consecutive years. Such persons may then on the approval of the governor and the council be retired on not more than one-half of their average wage during the previous five years. (C.38. In effect, July 3, 1919.)

Massachusetts. The pension plan for State

employees is modified to permit reinstatement of war veterans within two years after discharge from the colors. (C.94. In effect, May 9, 1919.) The act providing for retirement of superannuated city or town employees on pensions equal to one-half of the average salary of the two years prior to retirement is amended to make the pension one-half of the salary at the time of retirement. (C.21. In effect, April 4, 1919.) The pension plan for county employees is amended to permit reinstatement after two years' absence and to provide that in the case of War veterans the time spent in the service shall be excluded in reckoning the two years. (C.106. In effect April 16, 1919.) When approved by the mayor and council pensions for superannuated laborers employed by Boston are no longer to be limited to \$360 a year. (Sp.C.55. In effect, March 30, 1919.) When approved by the mayor and council, the maximum pension for superannuated janitors and attendance officers of the Boston schools will be raised from \$360 to \$500 per year. (Sp.C. 132. In effect, May 9, 1919.) Cities outside of Boston, and towns having a population of 10,000 or more are authorized to retire school janitors who have served 25 years and become incapacitated at the age of 65 years, on half pay, but not more than \$500 per year. For cities the act may be accepted by the mayor and city council, for towns by the voters at town meetings. (C.143. In effect May 31, 1919.) The act relative to pensioning laborers employed by cities and towns may be extended to foremen employed by Hol-yoke if so desired by the voters at the next municipal election. (Sp.C.49. In effect March 29, 1919.)

Minnesota. Any employee who has been for 20 years in the service of any county having 33,000 or more inhabitants, and who has become physically or mentally incapacitated, may be retired and his salary continued for three months. (C.23. In effect Sept. 22, 1919.)

New Jersey. The law establishing pension funds for the employees of street and water commissions is amended to permit assessments in excess of 2 per cent of the annual salary and provision is made for the refunding of contributions of honorably discharged employees. (C.259. In effect April 17, 1919.)

New York. Members of the retirement pension commission are not to be disqualified from holding other State or municipal offices, and the date for filing their report is postponed until 1920. (C.22. In effect, Feb. 26, 1919.)

Oregon. The State's Congressional representatives are urged to use all honorable means to secure the passage of the federal employees' pension bill. (S.J.R. 24. In effect, Feb. 24, 1919.)

Pennsylvania. The pension plan for counties of from 1,000,000 to 1,500,000 population is amended, making it more specific as to administrative detail. (No.100. In effect, May 8, 1919.)

Wisconsin. A "pension laws commission" of five unpaid members is directed to investigate the operation of pension laws and make recommendation to the Legislature. (C.514. In effect, July 11, 1919.)

ITALY. Through the viceregal decree of April 21, 1919, No. 603, Italy has introduced compulsory old-age and invalidity insurance for practically all manual workers, salaried employees, and professional classes, within its borders. The

decree replaced the government-subsidized voluntary insurance plan, and had the unanimous support of all employers' and employees' associations. Under its provisions insured persons have a valid claim for a pension (1) when they have completed the 65th year of age, and have made at least 240 bi-weekly contributions, and (2) at any age if they have become permanently disabled for work, and have made at least 120 bi-weekly contributions. An injured person is considered permanently disabled when his earning capacity has been reduced to less than one-third of the usual earning capacity of persons engaged in the same work in the same locality. If the condition of a pensioner improves so that he no longer comes within the definition of permanently disabled, the pension may be suspended. The income for this insurance is derived from contributions levied on each insured person and his employer in equal amounts, and from funds furnished by the state as a subsidy. Provision is made for increasing the insurance through voluntary increase of contribution rates. General supervision is exercised by the Ministry of Industry, Commerce, and Labor, which is required to submit an annual report to the Italian Parliament. The Insurance Council is placed in an advisory capacity, and the establishment of a technical actuarial office, to supervise the application of the law and to conduct researches, is provided for. The decree becomes effective on Jan. 1, 1920.

SPAIN. In Spain provision for the creation of deferred life annuities on a contributory and state-aided basis, was effected by the law of Feb. 27, 1908. The act was of a voluntary, not compulsory, nature. However, by a Royal Decree of March 11, 1919, old age insurance was made compulsory for all wage earners from 16 to 65 years of age whose total income was below \$800 per year. This insurance programme is supported by the state, a tax on employers, and compulsory contribution from insured persons; it yields a maximum of \$400 per year, payable from the age of 65. It is administered by the National Insurance Institution, a government organization which was established in the year 1908.

URUGUAY. The Old Age Pensions Law became effective in Uruguay on May 15, 1919. It provides for all persons reaching the age of 60 years, and other persons who may become entirely incapacitated and who are indigent, an annual pension of not less than 96 pesos (\$99.28), which may be paid in cash or in assistance. Foreigners or naturalized citizens of 15 years continuous residence are entitled to the pensions. Funds for the payment of these pensions are to be derived from new and increased imposts, as follows: 1. A monthly tax of 20 centesimos (20.68c) payable by each employer for each person in his employ. 2. A surtax on real estate having a value of not less than 200,000 pesos (\$206,840) graduated from 1.05 pesos (\$1.09) to 1.30 pesos (\$1.34) per 1000 pesos value, the latter representing the assessment on property valued in excess of 700,000 pesos (\$723,940). 3. Revenue taxes levied on playing cards, liquors, etc.

O'LEARY, ARTHUR. An English organist and eminent teacher, died at London, March 19. He was born at Tralee, Ireland, Mar. 15, 1834. For more than half a century he taught at some of the foremost music schools of London (Royal

Academy of Music, Guildhall School, etc.). He wrote some symphonic music and edited the piano-works of S. Bennett.

OLIVER, GEORGE TENER. Former United States Senator, died at Pittsburgh, Pa., January 22. He was born in Ireland, Jan. 22, 1848, and graduated at Bethany College, W. Va., in 1868. He practiced law in Pittsburgh from 1871 to 1881 and for the next 20 years was engaged in iron and steel manufacturing. He purchased the *Pittsburgh Gazette* and *Pittsburgh Chronicle Telegraph* in 1900 and continued as publisher to the time of his death. He was presidential elector in 1887 and delegate to the Republican National Conventions (1904-16). He was elected to the Senate on Mar. 17, 1909, for the term that expired in 1911 when he was reelected.

OLIVERAITE. See MINERALOGY.

OMAN. An independent Mohammedan state in Southeastern Arabia whose integrity has been guaranteed by Great Britain and France. Area, estimated at 82,000 square miles; population, at 500,000 chiefly Arabs. Capital, Muscat, with a population including the adjacent town of Muttrah, of about 24,000. Reigning Sultan, Seyyid Taimur bin Feysil.

ONE BIG UNION. See INDUSTRIAL WORKERS OF THE WORLD.

ONTARIO. Next to Quebec, the largest province of Canada lying between Quebec on the east and Manitoba on the west, capital, Toronto. Area, estimated at 407,262 square miles of which 41,382 are under water. Population 1911, 2,523,274. The population of Toronto was estimated in 1917 at 473,820—the largest city in Canada; population of Ottawa the capital of the Dominion, 100,561. The executive power is in the hands of a lieutenant-governor appointed for five years by the Governor-General, and an executive council or responsible ministry; legislative power, in a single chamber of 111 members, elected for four years. The Legislature was distributed among the political groups at the beginning of 1919 as follows: Conservatives, 79; Liberals, 31; Labor, 1. Lieutenant-governor in 1919 Sir J. S. Hendrie; Prime Minister, E. C. Drury. See CANADA.

OPERA. See MUSIC.

ORANGE FREE STATE. A province of the Union of South Africa. Capital, Bloemfontein with a population of 26,925 in 1911. European population in 1918, 15,752. See SOUTH AFRICA, UNION OF.

ORCHESTRAS. See MUSIC.

OREGON. POPULATION. The population of the State in 1910 was 672,765 and July 1, 1919, it was estimated to be 914,493, a gain during the twelvemonth of 26,000.

TRANSPORTATION. The main line single track mileage in the State in 1919 was 2937. The longest roads were the Oregon & Washington Railroad & Navigation Co., and the Oregon & California.

AGRICULTURE. The following is compiled from an annual report of the Federal Department of Agriculture.

Crop	Year	Acreage	Prod. Bu.	Value
Corn	1919	71,000	1,860,000	\$2,883,000
	1918	44,000	1,364,000	2,114,000
Oats	1919	347,000	11,104,000	10,216,000
	1918	361,000	9,025,000	8,664,000
Barley	1919	82,000	1,886,000	2,829,000
	1918	164,000	4,100,000	5,576,000
Wheat	1919	1,126,000	20,495,000	43,449,000
	1918	1,038,000	15,228,000	30,608,000

Crop	Year	Acreage	Prod. Bu.	Value
Hay	1919	854,000 a	1,452,000	27,733,000
	1918	815,000 a	1,467,000	29,340,000
Potatoes	1919	45,000	4,230,000	6,345,000
	1918	50,000	5,500,000	5,500,000

a Tons.

EDUCATION. The school population in 1919 was 207,158, and the enrollment was 146,546. The average daily attendance was 111,832.86, and there were 5913 teachers. The total educational expenses of the State for elementary and high schools in 1919 amounted to \$8,275,334.

FINANCE. The balance on hand on Dec. 31, 1918, was \$3,128,789, and on Dec. 31, 1919, it was \$3,271,798. The receipts for this period were \$17,811,118 and the disbursements amounted to \$17,668,110. The bonded indebtedness of the State on Sept. 30, 1918, was of a par value of \$3,040,000, with a discount on sale price of \$159,310. The laws of 1917 are authority for the issuance of all these bonds.

OFFICERS. Governor, James Withycombe; Secretary of State, Ben W. Olcott; Treasurer, O. P. Hoff; Attorney-General, George M. Brown. See OLD AGE PENSIONS.

OREGON, UNIVERSITY OF. A co-educational State institution, located at Eugene, Ore. There is a medical school at Portland, Ore., connected with the university. Early in 1919 a unit of the Reserve Officers' Training Corps was established. The institution was founded in 1876. President, P. L. Campbell, LL.D.

ORGANIC CHEMISTRY. See CHEMISTRY, GENERAL PROGRESS OF.

ORGANOTHERAPY. According to representatives of the manufacturing drug industry the demand for internal secretions on the part of physicians is likely to double in the near future. This comes about from several causes. First, in the individual case the result is very often marvelous and not easily explained by suggestion. When the drug is withdrawn improvement may cease, to reappear when the drug is resumed. This does not prevent permanent cures when the extracts are given over a sufficiently long period and when there is a genuine indication for their employment. The second reason is the naturalness of the treatment, for a child can understand that if the organism lack an ingredient which is indispensable to proper functioning, supplying the missing substance is a matter of feeding rather than medication. There is none of the mystery which attaches to the usual treatment of disease by drugs. It is, however, true that some of the active principles of organs are powerful drugs as well, and thus have a double use. Third, when disease can be treated from this viewpoint diagnosis as well as treatment is greatly simplified. When the practitioner has insight into the nature of a disease, treatment in the great majority of cases is a simple matter. The presence of the lues is readily recognized and treatment is as simple a matter as diagnosis, for we possess specific remedies. The same holds good for malaria. Treatment of disease by organic preparations falls under the same head. Nor is it usually necessary in these cases to submit the patient to exhaustive, repeated laboratory tests and to direct measures of treatment to the entire organism. The practitioner always looks forward optimistically to a treatment of disease by specific remedies and is inclined to believe,

in connection with obscure and incurable disease, that we have not yet discovered the real inwardness of the disease-process. Quite recently leprosy, once called the most incurable of diseases (with the possible exception of cancer) has come to be regarded as entirely curable. The remedy in this case is not new and not an organ extract but a substance long regarded as having specific properties. It is Chaulmoogra oil and the improved results are due merely to improved technic. But it is not absurd to state that organ extracts may come in time to possess values but little dreamed of and even to-day it is known that thyroid extract is of great value in old lues, probably in part because it contains considerable iodine in an assimilable form. It may also come in time to be shown that various remedies really produce their good results by stimulation or other modification of the internal secretions. Organ extracts are, when viewed as remedies, specifics, and as such entitled to be placed alongside of quinine in malaria, mercury and salvarsan in lues, etc. That we cannot rapidly and effectively cure tuberculosis and cancer may be due to our ignorance of their intimate nature rather than to essential incurability.

The recently reported results in Paris of grafting the interstitial portion of the male gonad (testicle) into the tissues of old men will give an impetus to organotherapy. These experiments have not yet seen the full light of day and some medical men have wrongly looked upon the whole subject as a newspaper hoax. But the idea is not new in the United States, for Dr. G. Frank Lydston of Chicago and others have been engaged in this field of work for many years. Cases long ago published, however, did not include old men, but men who were young or in the prime of life, who had lost their gonads from accident or disease. It is stated however that Dr. Lydston has also reported cases in which old men were the subjects and according to the daily press Lydston's technic has been used upon aged convicts in San Quentin prison. In all of these experiments the old have undergone a sort of general rejuvenescence as a result of the grafting, but this improvement has been limited to the subjective feelings, the hearing, etc., and did not extend to the restoration of many youthful objective characters.

In the French experiments the gonads of apes were used while in the American experiences the organs were taken from executed criminals, men dead of accident or previously subjected to operations, etc. It is not absolutely necessary that the grafted gonads be healthy as long as a certain amount of interstitial tissue remains intact.

Combinations of extract of male gonads, adrenal glands and thyroid glands have long been recommended for senility, general debility, etc., although no marvelous results have been claimed. It is possible that results obtained by grafting may come to be duplicated by ordinary internal medication. We no longer look forward chiefly to the diagnosis and treatment of conditions due to deficiency in a single gland, but to so-called "pluriglandular syndromes" in which defective secretion concerns several glands. The practitioner in his diagnosis recognizes the shortage in the activity of several glands concerned and prescribes a mixture of

extracts which can subsequently be modified to suit the case. The failure to get good results in a given case is frequently due to prescribing one gland instead of a mixture, or to neglecting to vary the mixture first prescribed. Only prolonged experience will make it possible to prescribe correctly so that we shall probably soon see endocrinology a recognized specialty. Already there is a National Society directed to the study of this subject and an official organ named "Endocrinology," has been in existence for several years. Not all organotherapy is directed to deficient secretion of the endocrine glands for some maladies are due to excessive or perverted secretion. The most striking results are, however, obtained when there is defective action. The subject must not be confused with Deficiency Diseases believed to be due to lack of so-called vitamins. See DEFICIENCY DISEASES.

ORLANDO, VITTORIO EMANUELE. Italian representative at the Paris Peace Conference. He was at that time Prime Minister of Italy. He was a Sicilian by birth and had been professor of constitutional law at Palermo university. For many years he was a close ally of the former Prime Minister, Giolitti, and he was Minister of the Interior in the recent cabinet of Boselli, in which capacity he was criticized as too mild in his dealings with neutrals and pacifists. But upon succeeding Boselli as Prime Minister in 1917 he governed with a strong hand and he also won confidence by his courage during the period of great depression after the Caporetto disaster, when he solidified the national resistance by his patriotic speeches and administrative measures. He was believed to be in favor of a liberal foreign policy, and it was he who had assumed a friendly attitude toward the Jugo-Slavs at the time of the Congress of Oppressed Nationalities.

ORNITHOLOGY. See ZOOLOGY.

ORNSTEIN, LEO. See MUSIC, Artists, Instrumentalists and Orchestras.

ORVILLITE. See MINERALOGY.

OSLER, Sir WILLIAM. British physician, for a long time a resident in the United States, died at Oxford, England, December 29. He was well known as a physician in the United States, where he made an especial impression by an address in which he was reported as characterizing all men over 40 years as comparatively useless. He was born at Bondhead, Canada, July 29, 1849, educated at Trinity University, Toronto; McGill University, Montreal, and London University, England. He was professor of physiology and pathology at McGill 1874-84, became professor of chemical medicine in the University of Pennsylvania in 1884, and professor of medicine at Johns Hopkins in 1889. From 1905 he was Regius professor of medicine at Oxford, and he lived in England until his death. His work embraced nearly every field of medicine and he was, besides, an admirable lecturer and organizer. In 1914-15 he was engaged in investigating the medical preparedness of the British armies. The remark above-mentioned in regard to men over 40 was widely quoted in the press and the spirit of his address on that subject was perverted, the term "Oslerism" being employed as if it meant literally that men over 40 years of age should be put out of the way as no longer of value to society. His views on the subject were not so one-sided as they were made to appear. As a

teacher his influence was remarkable and applied not only to medicine but to a wide range of interests. He remained in active practice until the close of his life. During the war his only son, a lieutenant in the army, was killed in action (1917). Among his publications may be mentioned the following: *Cerebral Palsies of Children*, (1889); *Chorea and Choreiform Affections*, (1894); *The Principles and Practice of Medicine*, (8th ed., 1912); *Lectures on Abdominal Tumors*, (1895); *On Angina Pectoris and Allied States*, (1897); *Monograph on Cancer of the Stomach*, (1900); *Science and Immortality*, (1904); *Æquanimity and other Addresses*, (1904); *Counsels and Ideals*, (1905); editor of *A System of Medicine*, (2d ed., 1915); *Thomas Linacre*, (1908); *An Alabama Student and other Biographical Essays*, (1908); *A Way of Life*, (1914).

PACKING HOUSE. See LIVE STOCK and FOOD AND NUTRITION.

PAGEANTS. No important pageants were held during the year but worthy of mention are the military pageants held in New York City on May 3d and the Peace Pageant held in Washington, D. C. on July 4th, which are briefly described under CELEBRATIONS (q.v.).

PAHANG. See FEDERATED MALAY STATES.

PAINTING AND SCULPTURE. The year 1919 saw the end of the great war and a cessation of the multitudinous activities of artists and art societies connected directly with war propaganda, Liberty Loan drives, and the like. The last effort and perhaps the most ambitious, was the Victory Liberty Loan drive. All the principal cities were embellished with posters, and vivid street decorations. In New York the "Victory Way" a very ambitious effort, converted a public thoroughfare into a great court-way with huge pillars on either side and a series of immense mural decorations representing the Allied nations, the whole presenting quite a grandiose effect. The immediate result of the war was an unprecedented demand for public memorials of all descriptions. Great care must be exercised that only works of real artistic merit be selected.

The necrology list of 1919 includes among American artists, the names of Charles Yardley Turner, mural decorator; the veteran figure and portrait painter, Frank Duveneck; Jules Stewart, long resident in Paris; Julian Story, portrait painter; E. L. Henry, the well-known painter of old fashioned American genre subjects; Ralph A. Blakelock, whose landscapes have become famous, Julian Alden Weir, prominent landscape and figure painter, president of the National Academy from 1915-17, and member of the "The Ten"; Gilbert Gaul, battle painter; Kenyon Cox, mural decorator, author and critic. Also James R. Brevoort, painter, Charles F. W. Mielatz, etcher; Edmund C. Messer, painter and former principal of the Corcoran School of Art; Darius Colt, painter and poet; Herbert T. Ward, sculptor, and Sarah Morris Green, sculptor. The death list included also two eminent art collectors, Charles L. Freer, who donated his large collection to the National Museum, Washington, and Henry Clay Frick, whose superb collection of old masters together with the handsome residence in which they were hung, becomes public property on the death of his wife; the architect, Charles Pratt Huntington, and Edwin A. Rockwell, for many years art editor

of the Brooklyn *Eagle*. In Great Britain we note the death of Sir Edward John Poynter, President of the Royal Academy; George A. Storey, artist and authority on perspective; Sir Ernest Albert Waterlow, landscape painter; George Howell Baker, figure and landscape painter; Arthur Hacker, R.A.; Charles Fairfax Murray, eminent art collector and connoisseur, and Henry J. Duveen, head of the firm of that name. In France were Jules Guiffrey, writer and former director of the Gobelins, a member of the Academy; Auguste Lepère, engraver; Alfred Philippe Roll, figure and portrait painter; Ernest Casini and Edouard Houssin, sculptors, and Auguste Renoir, pioneer of Impressionism, one of the foremost French painters of the century. The necrology of artists for other European countries is not available; it includes, among others, Paul Berthet, German sculptor.

EXHIBITIONS: PENNSYLVANIA ACADEMY. The 114th annual exhibition of the Pennsylvania Academy of Fine Arts at Philadelphia opened with fewer exhibits than usual, 400 instead of the usual 600-700. This naturally permitted greater freedom in hanging the pictures, and the result was an unusually interesting and attractive display. The prize winners were Charles H. Davis, to whom went the Jennie Sesnan Gold Medal for "Over the Hills," an able and characteristic work; Colin Campbell Cooper, who carried off the Walter Lippincott Prize for the best figure composition in the exhibition, with "Summer," two pretty girls in a boat, gathering lilies; Daniel Garber won the Temple Gold Medal with a charming effect of a slim young girl silhouetted against the light, entitled "The Orchard Window"; Juliet W. Gross, with her bright, vivacious "On the Hill" captured the Mary Smith Prize for the best work by a woman in the exhibition, and Leslie P. Thompson the Beck Gold Medal for the best portrait. The Stokesbury Prize was awarded to Arthur B. Carles for a large, sensational canvas entitled "La Marseillaise." Miss Jess M. Lawson received the Widener prize for her dramatic "Belgium—1914," already familiar. Among the many good portraits were examples by Leopold Seyffert, Cecilia Beaux, Albert Rosenthal, Howard Smith, Adolphe Borie, DeWitt Lockman, and Lamar Raditz. Special mention might be made of J. McLure Hamilton's double portrait of Judge and Mrs. Alexander Simpson; the full length presentment of Eugene Castello by Wayman Adams; Robert B. Susan's "Girl in White," and George Luks' "Mary Ellis." Notable figure compositions were the "Interior," by Frank Benson; "Greenwich Village," by John Sloan; Philip Hale's large "Cain"; the "Gold Fish," by Richard Miller; two large Indian subjects in the familiar styles of Irving B. Coussé and E. Blumenschein, and especially, "The Conspiracy," by Wayman Adams, a group portrait of three men, in hats and overcoats, absorbed in animated conversation in front of the Philadelphia Public Buildings. Other figure compositions were by Childe Hassam, Charles Hawthorne, Leopold Seyffert, Wm. Paxton, and Robert Henri. An unusually spirited marine was the "Transatlantic Convoy," by Frederic Waugh. Hayley Lever, Richard Andrews and Henry Reuter dahl were represented by excellent marine subjects. Characteristic landscapes, always a pleasure to see, were by J. Alden Weir, Cullen Yates, Robert Vonnoh, Olaf Brauner, Willard Metcalfe,

Edw. Redfield, Carl Rungius, Robert Spencer, Chauncey Ryder, George Bellows, a sombre "Moonlight Ride," Charles Rosen, with "Opalescent River" and Jonas Lie "At the Docks," a strong and convincing work. Examples by younger artists with a strongly localized American flavor were by Paul King, Roy Brown, Fred. Wagner, Charles Reiffel, and Eric Hudson. The small sculpture exhibition included examples by Chester Beach, Albin Polasek, Charles Grafty, A. A. Weinman and Leo Friedlander.

NATIONAL ACADEMY, SPRING EXHIBITION. The 94th annual exhibition of the National Academy presented a competent if somewhat monotonous aspect. The paintings were less in number, smaller in size and harmoniously hung, with landscapes predominating. Interest naturally centred in those by Edward Redfield and Gardner Symons, which won the first and second Altman prizes. Mr. Redfield's "Old Mill in Winter" showed delicate color and fine composition, and "Shimmering Tree Shadows" by Gardner Symons, was a really beautiful canvas, with more poetry in it than is usually displayed by this artist. Other notable landscapes were "The Hawk's Nest" by Daniel Garber, and Childe Hassam's "The Alders" both beautiful in color and full of suggestive content; "Hills and River," by Charles Rosen, strong and fine in color; a breezy colorful production by Van Perrine; W. Granville Smith's luscious "Summer Night," the delicately luminous "Lily Pond," by Paul King and an excellent example of Hayley Lever's spirited work. The list included also landscapes by Chauncey Ryder, Ernest Lawson, Reynolds Beal, DeWitt Parshall, Edward Potthast, Howard Russell Butler, Guy Wiggins, Emil Carlsen, Walter Griffin, Eliot Clark, Robert Spencer, John Folinsbee, and Albert Groll. "Between Setting Sun and Rising Moon," a blue-toned wood interior of dark, mysterious sentiment by Robert Strong Woodward, was awarded the first Hallgarten Prize.

The Isaac Maynard Prize for the best portrait went to Irving Wiles for "The Little Green Hat" and the "Portrait of Miss Marion Ryder," by Ercole Cartotto, very delicate and restrained in handling, captured the second Hallgarten Prize. Other portraits of note were by W. T. Smedley, Leon Kroll, who contributed a presentment of the artist Howard Giles; Victor Hecht, Leopold Seyffert, Henry Rittenberg, Lydia Field Emmet, Henry Poore, De Tryffillis, and Malcolm Purcell, whose "Louise," in subdued grays and greens, won the Saltus medal. A dashing, life size portrait of a young woman by DeWitt Lockman, with brilliant color and vivacious texture handling, calls for special mention.

Figure compositions were limited in number and of no striking import. "Trawlers, Monterey," by a new comer, Armin Hansen, was a marine with rich abundant color and breezy movement. Jerome Myer's "Evening," a group of women in East Side New York, of satisfying fullness of color, won the Thomas B. Clarke prize. Other good examples were "On the Porch," by Adolphe Borie; "A Spanish Lady," by Philip Hale; "Mending the Ballet Skirts," by Louis Kronberg; "Indian Corn," by Walter Ufer; G. L. Nelson's "Child's Supper"; "Rosemary," a baby portrait by Luis Mora; a small "Market Scene," by Olaf Olson, and an unusual little canvas "Christ and His Disciples," by

Andrew Conor. The "Jade Bowl," a still life by Dines Carlsen, received the third Hallgarten Prize. Among 53 pieces of sculpture shown were examples by Emil Fuchs, Brenda Putnam, Chester Beach, A. Lukman, C. S. Paolo and J. S. Juszkos, the latter a strong portrait head of Judge Gary.

CHICAGO ART INSTITUTE. The 32d annual exhibition of American paintings and sculpture at the Art Institute showed perhaps less conservative tendencies than usual in the general selection of the exhibits. Paintings by George Bellows filled an entire room, a number of them being his already familiar war pictures, and an Indian painting of colossal size, by Julius Rolshoven, covered the entire wall of another room. Leon Kroll was awarded the Logan Prize for his striking "Leo Ornstein at the Piano." Other awards were to Frederic J. Waugh, Robert Spencer, Frank V. Dudley and Lillian Westcott Hale. The latter's painting, a charming "Portrait of a Child," took the Potter Palmer Prize. "Sand Dunes," by Frank V. Dudley, a Chicago artist, was an exceptionally fine effort. The sculpture display was small and contained, among others, works by Albin Polasek, Louis Mayer, Victor Salvatore, and Gilbert P. Riswold.

CORCORAN ART GALLERY EXHIBIT. After an interval of two years, owing to war conditions, the exhibition of "Contemporary American Oil Paintings" at the Corcoran Art Gallery, Washington, was again resumed, with a large and representative showing of American painting at its best. The 316 paintings were well hung in the handsome and spacious galleries, and nearly all were seen for the first time. Beginning with such veteran artists as Elihu Vedder, Abbot Thayer, George deForest Brush, Mary Cassatt, J. S. Sargent, Gari Melchers, Edmund Tarbell, Childe Hassam, Cecilia Beaux, Joseph DeCamp, Horatio Walker, T. W. Dewing, the list included also such names as Arthur Davies, Maurice Sterne, Eben Comins, Sargeant Kendall, Randall Davey, Paul Dougherty, John C. Johansen, Walter Ufer, Howard Giles, Daniel Garber, Charles W. Woodbury, Hobart Nichols, W. L. Lathrop, Walter Griffin, Everett Warner, Eliot Clark, Edward Redfield, Chauncey Ryder, Paul King, Carl Rungius, and a host of others. The winners of the four William A. Clark Prizes were Frank W. Benson, with an interior "The Open Window"; Charles H. Davis, "Sunny Hillside," a landscape with rich and juicy color; Edwin Rook, a brilliant flower piece "Peonies," and Wm. S. Robinson, a landscape "October." The paintings purchased for the permanent collection of the Corcoran Art Gallery were, besides the prize winners, Frederic Frieseke's "Lady in Pink," and landscapes by Gardner Symons, Bertha H. Perrie, Relicie W. Howell, and Robert Spencer.

NATIONAL ACADEMY, WINTER EXHIBITION. A dearth of impressive portraits, the lack of representation by many well known academicians, and an unusual number of smaller paintings of good quality by artists more or less unfamiliar, marked the winter exhibition of the National Academy of Design. The most satisfactory prize winning picture was an excellent portrait study "The Painter," by Walter MacEwen. The Altman awards were undoubtedly open to criticism. A figure piece, agreeable but devoid of depth or originality, entitled "The Top of the World," by Charles C. Curran, received the first prize,

and a bright and cheerful but quite uninspired rendition of a familiar motif, a Hudson River steamboat with people disembarking at some upriver town, by Gifford Beal, was awarded the second. The Carnegie Prize went to Emil Carlsen for a beautiful surf painting, and the Isidor Gold Medal was given to R. McMillan for a convincing little portrait study entitled "An Old Lady." Two exceptionally fine marines, "Lifting Fog" and "The Sea Tilers," by Jonas Lie call for special mention. Notable figure compositions were "Pegasus," by Karl Andersen; C. C. Campbell's "Summer," exhibited before in Philadelphia; an impressive standing row of Indians by Walter Ufer; James A. Hopkinson's lanky Cumberland mountaineer; Ivan Olin's charming if somewhat sentimental "Adoration"; Raymond Neilson's bright and decorative "The White Parasol," and K. A. Buehr's "Home and Hollyhocks," while a bit thin in spots constituted a pleasing and well arranged canvas. Others were by Gertrude Fiske, Louis Ritman, Richard Miller, John Costigan, Louis Kronberg, Jerome Myers, G. J. Stengel, John F. Folinsbee, Philip L. Hale, whose "Flowers in the Moonlight," had a strange, unearthly quality; Maurice Fromkes, E. Irving Couse, and Maurice Molarsky. Among the portraitists were good examples by the following: Orlando Rouland, Jean McLane, Sidney Dickenson, A. Franzen, Robert Gauley, Leon Kroll, Edmund Greacen, Edith C. Phelps, Giuseppe Trotta, Luis Mora, and Norwood MacGilvary. A life size portrait group of three, with vivid orange as a key note, by Charles Hawthorne, and an unobtrusive but sensitive and striking little head of Mdle. de K. by Anne Goldthwaite may be specially mentioned. Characteristic landscapes by Ernest Lawson, John Carlsen, Cullen Yates, H. R. Butler, W. Granville Smith, R. S. Woodward, C. Chapman, Ernest Albert, A. Molarsky, Bruce Crane, Ernest D. Roth, Guy Wiggins, Robert Spencer, Charles Reiffel, Howard Giles, and others formed points of interest in the different rooms. A fine open western landscape "Wyoming," by Carl Rungius; the impressive "Peace and Quiet," by G. Glenn Newell, and "Early Spring," by Carleton Wiggins, breathing peace and quiet, appealed especially.

Uniformly small in size were the 85 pieces in the sculpture exhibit. "Big Oak," a finely characterized portrait head by Victor Salvatore, received the Helen Foster Bennett Prize. The genial "Baby Boat," by Laura Gardin Fraser, took the Julia H. Shaw Memorial Prize, and the Watrous Gold Medal was given to Rudolph Evans for "Boy and Panther." Janet Scudder, Abraham Rosenstein, Marco Zim, Gerome Brush, G. Novani, Chester Beach, Isidore Konti, A. A. Weinman, J. Jusko and F. Tolles Chamberlin contributed portrait busts, while interesting figurines and animal groups by Ulysses A. Ricci, Allan Clark, A. P. Proctor, Karl F. Skoog, Alexandre Zeitlin and Brenda Putnam were noteworthy.

SOCIETY OF INDEPENDENT ARTISTS. The third annual exhibition of this society, which maintains the principle of "no prizes, no jury," opened in New York, with 650 exhibits as against the 1500 of their first venture. A general survey revealed a noticeable falling off of examples of Futurist and Cubistic art. As all paintings were hung in alphabetical order, amazing juxtapositions resulted. Although

much of the work shown was by artists still apparently in the experimental stage, many excellent works were shown by well known artists like Robert Henri, William Glackens, Jonas Lie, George Luks, George Bellows, Reynolds Beal, and others, as well as some by lesser known men.

OTHER EXHIBITIONS. Perhaps the most important and interesting exhibition of the year was the Gustave Courbet Centenary Memorial, held at the Metropolitan Museum of Art. Over 40 fine canvases were on view, all characteristic works of this great realist, whose influence on contemporary painting was so far reaching. A loan exhibition of old masters at the Lotos Club, New York, was a revelation of the many important examples of early Dutch and Flemish art in private collections. Examples of Pieter de Hooch, Jan Steen, Thos. de Keyser, Van Goyen, Terborch, Cuyp, Flihek, Nicholaes Maes, Rembrandt, Hals, Tintoretto, Velasquez, Van Dyck and Rubens, were to be seen, and especially the superb "La Jabagie" of Brouwer, belonging to Mr. Michael Friedsam. At the Corcoran Art Gallery, Washington, an exhibition of "The Ten" was held. The American Painters, Sculptors and Gravers held their first annual exhibition in New York, with works by Gari Melchior, Robert Henri, G. Du Bois, Jonas Lie, Samuel Halpert, Randall Davey, Maurice Sterne, Rockwell Kent, and others, including the sculptors, Paul Bartlett, A. Sterling Calder, John Flanagan, and Mahonri Young. Other societies which held annual exhibitions in New York were "Women Painters and Sculptors," "New York Water Color Club," "New York Society of Painters," "National Association of Portrait Painters," and the "Allied Artists of America." Of exceptional interest were certain exhibitions of the works by single artists in local galleries; of Auguste Renoir, with 21 examples completed since 1914; Monet, with examples of his latest work; Odillon Redon, a series of lithographs and etchings of great interest, Jean Julien Lemordant, poet-painter, blinded in action in the great war, and the impressionist Pissaro. An exhibition of French drawings, etchings and lithographs showing the development from Ingres and Delacroix down to the present day was especially noteworthy. An exhibition of American painting and sculpture was sent to Paris and placed on view in the Luxembourg. In return the French government organized an exhibition of contemporary French art, which, after many delays, was finally installed in the Metropolitan Museum of Art. The exhibition as a whole, although containing examples by eminent artists like Renoir, Monet, Andre, Simon, LeSidaner, Caro-Devaille, Maurice Denis, Beaudard, and others, did not uphold the expected high standard of modern French art.

MUSEUM ACCESSIONS. During the year the Metropolitan Museum of Art acquired two early Italian pieces, a Siennese triptych, and Florentine panel, a "Crucifixion," by Pesellino; a valuable eighteenth century French cylinder desk with the royal coat of arms; a large Courbet, "Roger Le Diable," both gifts; ten drawings from the Degas Sale; and "Marsyas," a characteristic example of the French sculptor, Pierre Puget, a purchase. An important piece of American sculpture "Memory," by Daniel Chester French, also a gift, was added to the collection of contemporary work. The Egyptian

Department was enriched by the addition of seven large seated statues of the goddess Sekhmet, and a choice collection of jewels excavated from the tomb of the Princess Sat-Hathor-Iunut of the twelfth dynasty, unequalled in beauty and number in any other museum outside of Cairo and acquired through the generosity of Mr. Walters of Baltimore. To the Print Department was added a complete set of 42 proofs of the woodcuts of Hans Holbein's "Dance of Death," and a notable addition to the Arms and Armor section was a beautifully engraved and gilded suit of French armor for man and horse, dated 1527. The Museum purchased in Portsmouth, N. H., the Wentworth-Gardner colonial house (1721) which will be preserved as a monument of a historic period.

In Youngstown, Ohio, the new Butler Art Institute, a beautiful marble building in the style of the early Italian Renaissance, was completed.

ITEMS OF INTEREST. A National Portrait Gallery Foundation was provided for through a donation of Mr. Christoffer Hannevig, and well known American artists have already been selected to paint 25 portraits of men prominent during the great war. Mr. Louis C. Tiffany offered his home on Long Island and a substantial endowment for purposes of an institute for art education, to be known as the "Louis C. Tiffany Art Foundation." Among the many projected war memorials, "Patriotism Guarding the Flag," by Paul Bartlett in Duluth, Minn., has already been completed. Other public monuments erected were the "Princeton Battle Monument," by Frederick MacMonnies, at Princeton, N. J.; "The Pioneer," at Eugene, Ore., designed by A. Phimister Proctor, and the "Benjamin Franklin" monument, by Paul Bartlett, at Waterbury, Conn.

In Paris, the beautiful eighteenth century Hotel Biron was converted into a Rodin Museum.

SALES. In America the outstanding single sales of importance were, the purchase by Mr. Henry Clay Frick, of the "Camperdown" Washington, by Gilbert Stuart for the sum of \$75,000; a beautiful Vermeer van Delft, from the Simon Collection, Berlin, and part of the famous collection of Limoges enamels, bronzes, etc., which formed part of the late Mr. J. P. Morgan's collection. Mr. Michael Friedsam acquired the portrait of Benjamin Franklin by Duplessis, and Josef Stransky added Degas' "Le Salut de L'Etoile," to his extensive collection. Single sales reported were the superb "Coast in Winter," by Winslow Homer for \$33,000 to a private collector; Whistler's well-known portrait of a lady as a Japanese; Manet's "Boy with a Soap Bubble," bought by Mr. Adolphe Lewisohn, and the famous "La Frileuse," by Houdon, purchased by Mr. H. P. Davison. Important events in Paris were the Michel Levy, Hoentschel and Flameng sales. Sir George Drummond's well-known collection of old masters long in Montreal, was dispersed in London, and single sales such as Reynolds's famous "Mrs. Siddons as the Tragic Muse," Jan Steen's "Spendthrift," a Romney portrait from the Hamilton House sale, purchased by Duveen Brothers, all brought record prices.

PALESTINE. A small region in Asia Minor in the southwestern part of Syria with an area estimated at 9800 square miles and a population estimated at 720,000, of whom about 500,000 were Mohammedan, 120,000 Jews, and

100,000 Christians. Of late years the trade of southern Palestine whose chief town is Gaza (pop., 35,000 to 45,000), has been expanding. Self-administering colonies of Jews and Germans have been established in Palestine. In the neighborhood of Jaffa there were 45 such colonies at the beginning of 1917 with a population of 15,000, consisting mainly of Russian Jews, and using Hebrew in the daily speech and in the schools. After the British conquest in 1918 it was occupied by the British, but in 1919 the French claimed the preponderant interest in all of Syria. See SYRIA; and WAR OF THE NATIONS; also ARCHÆOLOGY.

PALGRAVE, Sir ROBERT HARRY INGLIS. British economist, died January 25. He was the editor of the well-known Palgrave's *Dictionary of Political Economy* (3 vols., 1894-1914). He was born at Westminster, June 11, 1827. His other writings include: *The Local Taxation of Great Britain and Ireland*, (1871); *Notes on Banking in Great Britain and Ireland, Sweden, Denmark, and Hamburg*, (1873); *An Analysis of the Transactions of the Bank of England for the Years 1844-72*, (1874); *Bank Rate and the Money Market in England, France, Germany, Holland and Belgium 1844-1900*, (1903); *An Enquiry into the Economic Condition of the Country*, (1904).

PALMA, RICARDO. Peruvian author. See SPANISH LITERATURE.

PANAMA. A state of Latin America, situated between Colombia and Costa Rica; previous to Nov. 3, 1903, a department of Colombia. Capital, Panama.

AREA AND POPULATION. The area of the eight provinces into which the country is divided is estimated at 33,776 square miles, and the population (1917) at 401,554 (census of 1912, 336,742), not including the Canal Zone. Chief towns, Panama, with a population estimated in 1915 at 60,028, and Colon with about 30,000. The prevailing religion is Catholicism. The government was authorized by the legislature on March 7th to promote immigration, preferably from the Canary Islands or Porto Rico for the purpose of developing the land. The government was to protect the immigrant and find a place for him if necessary. Any person under 50 years of age entering the country for agricultural purposes was entitled to these benefits. Education is supported by the State. Changes were introduced in the system of public instruction by the law of March 10th. Among the changes may be mentioned the requirement that primary instruction should be obligatory for all children from seven to 15 years of age, and that parents and guardians should be responsible under the penalty of 25 cents a day during the child's absence; the authorizing of the secretary of public instruction to obtain teachers of technical branches from foreign countries when necessary; the provision that employees should not be dismissed for political opinions or required to contribute to political funds.

PRODUCTION, COMMERCE, ETC. About five-eighths of the land is unoccupied, although the soil is of great fertility; and the cultivated tracts are not properly developed. The chief product is bananas; other products are coffee, cocoanuts, rubber, corn, sugar, tobacco, mahogany and other forest products. Sugar production for 1918 was estimated at 40,000 quintals. Statistics for commerce were not available later

than those given in the preceding YEAR BOOK. In 1917 imports were \$9,223,000 and exports \$5,624,000. The greater part of the trade was with the United States. There were about 200 miles of railway open to traffic including the Panama railway, crossing the Isthmus and connecting Panama with Colon. There is communication between the Isthmus and American and European countries on both sides by several lines of steamships. Traffic with Panama and Colon is carried on through the ports of the Canal Zone.

FINANCE. Gold is the standard of currency and the unit is the balboa, equivalent to the United States dollar. The budget for the two-year period Jan. 1, 1917 to Dec. 31, 1918, balanced at \$7,180,170. The two-year budget for 1919-21, inclusive, was estimated on January 28th at 7,220,474 balboas, and the net expenditure at the same amount. The latter was distributed as follows: Administration and justice, 2,664,910 balboas; foreign relations, 182,440; treasury, 1,935,817; public instruction, 1,100,730; agriculture, 1,356,577. Any excess revenue over that calculated was to be distributed in the following manner: Not less than 75 per cent to be used to establish a fund for road-building and repairing, and not more than 25 per cent to cover extra or special credits not in the budget for necessary expenses.

GOVERNMENT. Executive power is vested in the president, three vice-presidents and cabinet of five ministers; legislative power in the national assembly of 33 members, one for every 10,000 inhabitants. Each of the provinces has its governor. The president in 1919 was Dr. Belisario Porras. The year 1919 was the 400th anniversary of the founding of the city of Panama and celebrations were fixed for the 15th of August. See EXPLORATION, NORTH AMERICA.

PANAMA CANAL. In 1919 there passed through the Panama Canal a greater amount of traffic than in any year since it was opened. Two thousand, three hundred and ninety-six ships of 7,128,000 net tons, passed through the waterway. The cargoes of the merchant ships amounted to 7,711,000 tons.

Ships measuring 7000 tons, carrying 10,000 tons of cargo, were 2 per cent greater than in any previous year.

In December all previous monthly records were surpassed as 283 ships of 957,000 net tons, carrying cargoes of 953,000 tons, went through the canal. The tolls collected amounted to \$801,373 for December and \$6,972,000 for the year. In the fiscal year which ended June 30, 1919, the Panama Canal earned \$241,822 more than its operating expenses. The total cost of maintaining and operating the canal during the year was \$6,112,194. Of this amount \$3,382,163 was for overhead charges for civil government, hospitals, quarantine, sanitation, etc. Tolls on the vessels passing through the canal amounted to \$6,156,118, and revenue from licenses, taxes, fines, and profits on business operations increased this to total earnings of \$6,354,016. It was stated in connection with the financial report that the expenditures for maintenance and operation did not include any allowances for depreciation of the plant and equipment or any interest charges on the capital invested in the canal. It was of interest to consider that the entire investment of the United States in the canal up to June 30, 1919, was \$365,416,000.

In addition to this, the operating expenses had exceeded the revenue to 1919 by \$4,618,690. The net earnings over operating expenses in 1919 were about half what they were in the preceding year, the falling off being due to a decrease of about \$58,000 in revenues and an increase of about \$192,000 in operating expenses. The number of ships according to nationalities using the canal during the fiscal year 1919 was: Belgian, 1; British, 602; Canadian, 2; Chilean, 93; Chinese, 4; Colombian, 1; Costa Rican, 12; Danish, 79; Dutch, 19; Ecuadorian, 1; French, 104; Greek, 3; Japanese, 87; Mexican, 1; Panamanian, 128; Peruvian, 65; Russian, 3; Spanish, 5; Swedish, 29; United States, 786; total, 2025. On July 24th and 25th, 33 vessels of the Pacific Fleet of the United States navy were passed through the canal, the largest operation effected up to that time.

The following tables show the number of vessels moving through the canal in each direction during the fiscal year by months and the total number for five fiscal years:

NUMBER OF COMMERCIAL VESSELS OF VARIOUS NATIONALITIES PASSING THROUGH THE PANAMA CANAL

ATLANTIC TO PACIFIC		
1918		Number
July	.....	64
August	.....	62
September	.....	88
October	.....	75
November	.....	69
December	.....	64
1919		Number
January	.....	77
February	.....	80
March	.....	78
April	.....	65
May	.....	75
June	.....	68
Total fiscal year 1919	.....	860
Total fiscal year 1918	.....	921
Total fiscal year 1917	.....	905
Total fiscal year 1916	.....	411
Total fiscal year 1915	.....	530
Total	.....	3,627

PACIFIC TO ATLANTIC		
1918		Number
July	.....	105
August	.....	96
September	.....	90
October	.....	114
November	.....	114
December	.....	105
1919		Number
January	.....	94
February	.....	76
March	.....	75
April	.....	96
May	.....	101
June	.....	99
Total fiscal year 1919	.....	1,165
Total fiscal year 1918	.....	1,209
Total fiscal year 1917	.....	971
Total fiscal year 1916	.....	376
Total fiscal year 1915	.....	558
Total	.....	4,279

Total in both directions by fiscal years:		
1919	.....	2,025
1918	.....	2,130
1917	.....	1,876
1916	.....	787
1915	.....	1,088
Grand total	.....	7,906

Governor of the Canal Zone in 1919, Col. Chester Harding, U. S. A.

PAN-AMERICAN CHILD WELFARE CONGRESS. See CHILD LABOR.

PAPER. The American paper and pulp industry in 1919 was marked by general prosperity for the manufacturers, high prices for the consumers, and increased exports with promise of important developments in this last field. War restrictions had been abolished in the previous year, and while there were complaints of high prices and threatened investigations, yet the paper makers pointed to the fact that the alleged inordinate profits had not been such as to attract capital to embark in the industry on any large scale and there was a shortage of producing capacity for ordinary needs. The production of all classes of paper showed an increase over 1918. Thus in newsprint there was a substantial gain. In the U. S. from 24 companies reporting their statistics for the year 1919 a total production of 1,116,148 tons was reported, or 81,292 tons, nearly 8 per cent, in excess of that for 1918, 1,034,856 tons. In 1919 the production was 98.9 per cent of maximum and in 1918 it was 88.9 per cent. In 1919 the average daily output was 3600 tons as compared with 3338 tons in 1918. The total shipments from United States mills in 1919 were 1,121,613 tons as compared with 1,071,711 tons in 1918. In Canada the production of newsprint for 15 companies that furnished similar statistics was 769,809 tons in 1919, which amount exceeded the 1918 production, 702,936 tons, by 66,866 tons or more than 9 per cent. In 1919 the daily output was 2480 tons and in 1918 2275 tons. Canadian shipments in 1919 totalled 775,968 tons and in 1918, 712,950 tons. Along with the shortage of newsprint the prices were correspondingly high, that is as compared with earlier years, but not according to the paper makers when compared with the increases that had taken place in other commodities. Thus in a statement of average prices by months of newsprint F.O.B. at the mills there was a range of from \$3.588 per 100 pounds to \$3.902 at the end of the year, where in 1914 a similar range extended from \$1.92 to \$2.

What was true for newsprint held for other grades of paper and paper products during 1919 and there developed during the year an active export business. The newsprint exportation from the United States for 11 months ended November, 1919, amounted to 106,720 tons valued at \$9,717,599 as compared with 90,820 tons valued at \$7,451,417 in 1918. In these 11 months Argentina was the largest consumer and took 26,000 tons valued at \$2,182,583. In the same period book paper to the amount of over 74,000 tons valued at \$15,577,753 which was nearly double that of 1918, was exported. Writing paper to the value of \$12,716,637 was exported in the same 11 months of 1919 and represented an increase of more than \$7,000,000 from the previous year. Wrapping paper exported in the same period of 1919 aggregated 35,050 tons valued at \$6,239,463 as compared with 26,900 tons valued at \$4,392,851. In paper boards there was also an increase in exports while in rags and paper stocks exports of 15,000 tons valued at \$662,953 in 1918 grew to 23,747 tons valued at \$1,343,910 in 1919. Wood pulp increased from 18,266 tons valued at \$1,595,512 in 11 months of 1918 to 33,177 tons valued at \$2,815,799 in 11 months of 1919. For 10 months ending October,

1919, paper and paper products exported from the United States reached a grand total of \$76,377,538 in value. In November there was a decline in exports as American traders were disturbed by the low and fluctuating rates of foreign exchange. It was however manifest that where as in 1913 the United States only produced for its own consumption and was a large importer, in 1919 its exports were in active demand. In fact throughout the industry conditions were such that over \$5,000,000 worth of paper machinery was on order and new mills were under construction as a shortage of producing capacity was clearly evident. Typical of the high prices that this condition engendered it may be said that dealers in newsprint at the end of the year were asking \$85 to \$90 a ton in large yearly contracts and \$200 a ton for lots from 200 to 500 tons. This shortage affected in large measure the small publishers especially of rural papers and a bill was introduced into Congress by Representative Anthony to reduce the size of papers. Hearings were had on this bill, and informally it was agreed to cut down consumption for the next six months in the general interest. The paper men rather had the best of it in 1919 in their controversy with the publishers as the shortage of paper acted to reduce space available for advertising and thus cut down the publisher's profits.

In addition to the United States and Canada Japan showed a flourishing paper industry in 1919 a production of some 45,000,000 lbs. having been secured in that year with a yearly increase of about 10 per cent. At the beginning of the year there were in existence 27 paper mills capitalized at yen 66,000,000.

Among the technical developments of the year in the United States were elaborate experiments to make paper from cotton linters which showed good progress and some studies undertaken at the Forest Products Laboratory in Wisconsin to seek means of destroying fungi and bacilli affecting American forest trees used for pulp.

During the year there were prepared by the Forest Service of the U. S. Department of Agriculture estimates of future supplies of pulp wood which were of special significance in view of the statement made that in less than 20 years 95 per cent of the pulp and paper mills of the country, mainly those in the East, would have practically exhausted their supplies of spruce, hemlock and fir—the principal woods from which the paper on which newspapers are printed is made.

In 1919 the annual cutting of these woods in the New England States and New York was approximately 3,262,000 cords, and at this rate the supply would last approximately but 17 years. The estimated annual cutting in the Lake States was 3,030,000 cords and if continued would exhaust the supply in that region within 18 years. Pennsylvania, Maryland, Virginia, and North Carolina, with their smaller forest resources, were even worse off, the annual cutting being calculated at 1,470,000 cords, at which rate the spruce, hemlock, and fir would last but 10 years. Only in Alaska, Washington, Oregon, and California were the reserves in no immediate danger of exhaustion if the cutting continued at the rate of 2,218,000 cords a year as was the rate in 1919.

The forest service further was of the opinion that with the rate of cutting practiced in 1919 the entire supply of the United States of hem-

lock, spruce, and fir resources, including the vast forests of far-off Alaska, would be sufficient to meet the lumber and paper demands for less than three-fourths of a century. But, inasmuch as 95 per cent of the pulp and paper mills were located in the East the inaccessibility of raw material and heavy transportation cost after a while would be serious. These paper mills were very expensive establishments, often costing millions of dollars, and could not be moved conveniently to new locations nor could wood be shipped to them economically from great distances.

Up to 10 years previously the Forest Service stated the United States was self-supporting with regard to newsprint, but within the decade 1910-19 the consumption exceeded home production and promised to do so increasingly. In view of this situation two alternatives must be considered, according to forest service experts and representatives of large wood-using industries. The country must depend increasingly upon Canada, eventually abandoning many of its own mills, or the nation's policy with regard to its private forests must be radically changed. Canada now has 90 paper and pulp mills which produce approximately 2100 tons of paper a day, of which 89 per cent is available for export. Of all supplies of paper, wood and pulp used by the United States about one-third now comes from Canada.

The forest service pointed out, however, that whether paper interests relied increasingly upon Canada, or upon increased use of Western resources, in either case these were temporary expedients. In the long run the country must solve the paper problem on the basis of a permanent wood supply. To this end it is urged that saw-mill waste be utilized for paper making and that the forests of this country be regenerated and administered on a more productive basis.

Even more important than the utilization of mill waste was the regeneration of the forests for the perpetuation of the paper industry in the United States. The policy of wastefully cutting the forests and making little provision for future growth must be abandoned speedily, the forest experts urged. In the future operations should be so conducted as to secure increasing production of trees valuable for lumber and pulp.

In Canada paper and pulp represented an important industry and in the census for 1918 it was stated the capital investment amounted to \$241,708,223. The product for the year was valued at \$119,309,434 and the number of people employed exclusive of woodsmen, was 25,863 to whom the total of wages and salaries paid amounted to \$26,944,226. The exports for the fiscal year 1919-20 were estimated at approximately \$100,000,000 and of this amount some 75 per cent was imported by the United States. The exports from Canada in 1918 were 185,427 tons, and in 1919, for 10 months were 143,421 tons as compared with 151,711 tons in a corresponding period of 1918. Government regulation and restrictions continued in Canada and were to be in force until June, 1920. Towards the end of the year these restrictions gave rise to some slight friction and in December shipments to the United States were held up until the shippers should agree to supply Canadian consumers experiencing a shortage. In fact there was discussion of an export tax on paper

and pulp but up to the end of the year nothing definite was done in the matter.

PAPUA. A territory in the southeastern part of the island of New Guinea, formerly a colony of New Guinea, but since November, 1905, administrated by the Australian Commonwealth. The territory, includes also a large number of small islands. The total area is 90,540 square miles, of which 87,786 are on the Island of New Guinea. The population was estimated on June 30, 1918, at 200,000 Papuans; 963 Europeans, and 311 colored other than Papuans. Other estimates place the total population higher, varying all the way to 400,000. Capital, Port Moresby. The chief products are cocoanuts, rubber, sago, and timber, but agriculture has not been developed. On June 30th, 1918, 42,675 acres of cocoanuts were under cultivation and at the same time the total area of plantation was placed at 57,593 acres. The four ports of entry are Port Moresby, Samarai, Daru, and Bonagai. Large steamships ply between Port Moresby and Sydney. In 1919 the railway between Port Moresby and Laloki River was under construction. Financial and commercial figures are as follows:

	1915	1916	1917	1918
Imports	£202,055	£223,040	£271,640	£283,792
Exports	84,714	125,428	156,585	220,599
Revenue	51,961	49,311	62,920	72,594
Expenditure ...	82,535	77,913	83,740	103,176
Shipping, tons..	328,007	247,887	231,008	121,727

PARAGUAY. A republic of South America. Capital, Asuncion.

AREA AND POPULATION. Paraguay proper, which lies between the rivers Paraguay and Alto Parana has an area estimated at 65,000 square miles. The so-called Chaco, that is to say, the region between the rivers Paraguay and Pilcomayo, with an area of more than 100,000 square miles, is claimed by both Paraguay and Bolivia. The total population was estimated in 1917 at about 1,000,000 exclusive of about 30,000 Chaco Indians. In Paraguay proper the population is mainly of Guarani Indian stock. Those of European descent are mainly of Spanish blood, but there are some of mixed European and negro race. The foreigners in 1917 were placed at 60,000, of whom from 20,000 to 30,000 were from Argentina. Asuncion (founded in 1537) has an estimated population of 120,000. Other large cities are Villarrico (26,000); Concepcion and Carapegua with 15,000 each. The Roman Catholic religion is the established religion of the State. Education is free and so far as schools are available is compulsory. The primary schools in 1917 numbered 1046 with 62,657 pupils. For higher education there are national colleges or high schools at the principal cities and there are also universities.

PRODUCTION. Forests prevail throughout the country, the area of the woodland being placed at over 11,250,000 hectares, containing abundant building wood timber, dyewoods, and wood for paper pulp. Oil-producing plants are found in abundance, such as the cocoanut palm, copaiha and spurge, which grow wild in certain parts of the country. Fibre-producing plants are also found, including cotton. One of the most valuable products is iron-wood from which tannin is obtained for export. It is found especially in

the Chaco region of the west where the forest produces about 30,000 tons of tannin extract each year. There is a considerable export of lumber and building timber to Uruguay and Argentina, ranging from 60,000 to 100,000 tons a year. Cotton cultivation was important in the past but suffered during the war. Afterwards, however, efforts were made to cultivate enough for home consumption. Tobacco is an important product, the normal output being about 220,000 hundredweights. Sugar production in 1918 was estimated at 1700 tons. Among the minerals found in abundance are iron, copper and manganese. Iron has been worked for more than 60 years.

COMMERCE. The exports in 1918 were 11,399,712 gold pesos and the imports 11,051,622. The exports for the first six months of 1919 were 6,662,231 gold pesos and the imports 6,006,860. A gold peso equals in the United States currency \$.9848. The most important agricultural product exported is tobacco of which in 1918 the exports amounted to 7010 tons. Foreign commerce for the five years 1914-18 was valued at 81,932,672 gold pesos of which 35,526,223 were imports and 46,406,449 exports. The normal orange crop is about 220,000,000 oranges. An important product used for food purposes but susceptible of yielding important materials for manufacture is mandioc which is cultivated throughout the country. Leading exports are hides, fruit, tobacco, timber, cattle, preserved and jerked beef, petit grain oil and quebracho extract, and the chief imports are food-stuffs, textiles and hardware. By far the largest sharer in the trade is Argentina.

COMMUNICATIONS. There is a railway from Asuncion to Alto Parana, extending 234 miles and from the latter point there is communication with the Argentine railway system by means of a train ferry. Steamships run between Asuncion and Concepcion and the ports of Argentina along the Paraguay River. In 1919 a new line was undertaken to connect the ports of the upper Paraguay with Montevideo, which was regarded as an important step in the development of commerce. Vessels entered at the port of Asuncion in 1917 numbered 3761 with a tonnage of 469,822; cleared, 3760, with 474,342. The chief company engaged in the river service was the Argentina Navigation Company under the control of British interests.

FINANCE. Paper has been the sole circulating medium with the exception of a few small nickel pieces and the currency has been subject to frequent fluctuations. In 1919 the paper peso passed current at less than one-tenth of its face value in silver. The currency of Paraguay was conducted practically on the bases of Argentine paper and gold. The revenue for 1918 according to a British authority was £523,311; expenditures £577,182; for 1919, revenue £1,105,911; expenditures £1,071,332. The internal debt Jan. 1, 1919 was 2,044,783 pesos gold and 33,133,445 paper; external debt, 5,612,701 pesos gold.

GOVERNMENT. Executive authority is vested in a President elected for four years with a cabinet of five ministers, and legislative authority in a Congress of two houses, a Senate and a Chamber of Deputies, both of which are elected directly by the people, the Senate in a ratio of 1 member to 12,000 inhabitants and the chamber in the ratio of 1 to 6000. The President at the beginning of 1919 was Dr. Manuel Franco.

PARDEE, DON ALBERT. Judge, died at Atlanta, Ga., September 26. He was born at Wadsworth, Ohio, March 29, 1837, and after four years at the United States Naval Academy (1854-57) he studied law and was admitted to the bar. He served during the Civil War and in March, 1862, was brevetted colonel of volunteers, and in March, 1865, brigadier-general of volunteers. After the war he practiced law at New Orleans; served on the bench, 1868-80, in the second judicial district, and was United States Circuit Judge from 1881 to the time of his death. In 1898 he removed to Atlanta, Ga.

PARK COLLEGE. A non-sectarian institution of learning at Parkville, Mo. In the fall of 1919 there were enrolled 434 students, and the faculty numbered 21. The productive endowment amounted to \$678,000 and the income for the year was \$297,969. The library contains 27,000 volumes. In 1919 a new men's dormitory, costing \$100,000; a dam for the water supply, \$25,000; and a new lighting and heating plant, were constructed. Park College was founded in 1875. President, Frederick William Hawley, D.D., LL.D.

PARKER, HORATIO WILLIAM. Musical composer, died at Cedarhurst, N. Y., December 18. Since 1894 he had been professor of the theory of music at Yale University. He was born in Auburndale, Mass., Sept. 15, 1863, and devoted himself to music while still a child. He was organist in Dedham and Boston churches for a time and then studied music at the Royal Conservatory in Germany, where he graduated in 1885. After serving as teacher of music and organist in St. Paul, Minn., Garden City, L. I., New York, and Boston, he became professor of the theory of music at Yale (1894). His first composition consisted of a setting to music of Kate Greenaway's poems under the title of *Under the Window*. He received a prize for his cantata in the competition instituted by the New York National Conservatory in 1893. He was the recipient of other prizes, and he wrote a large number of pieces both sacred and secular. Among his works may be mentioned the following: *Cantatas, King Trojan, The Kobolds*; oratorios, *Hora Novissima* (1898); *St. Christopher* (1898); *A Wanderer's Psalm* (given under his direction at the Hereford Festival, England, in 1900). He also wrote a number of textbooks for the use of schools and colleges and his work as an educator secured for him great influence not only in his university but in all educational circles.

PARKS, NATIONAL. In 1919 the tract of land in Maine bestowed by citizens upon the government of the United States in 1916 was named the Lafayette National Park. Its area was about 10,000 acres, and it differs from other parks in the national system in that it is not only situated in the extreme East, but combines seashore and mountain. The gift in 1916 amounted to 5000 acres, and President Wilson by proclamation gave it the name of The Sieur de Monts National Monument. It was increased by subsequent gifts and in 1918 Congress appropriated a sum for its maintenance and development. In February, 1919, Congress changed its name and status, and it became the Lafayette National Park. The national parks down to and including 1919 are summed up with leading features in the following table, published by the Department of the Interior:

<i>National parks in order of creation</i>	<i>Location</i>	<i>Area in sq. miles</i>	<i>Distinctive characteristics</i>
Hot Springs, 1832	Middle Arkansas	1½	46 hot springs possessing curative properties—Many hotels and boarding houses—20 bathhouses under public control.
Yellowstone, 1872	Northwestern Wyoming	3,348	More geysers than in all the rest of the world together—Boiling springs—Mud volcanoes—Petrified forests—Grand Canyon of the Yellowstone, remarkable for gorgeous coloring—Large lakes—Many large streams and waterfalls—Greatest wild bird and animal preserve in the world.
Sequoia, 1890	Middle eastern California	252	The Big Tree National Park—12,000 sequoia trees over 10 feet in diameter, some 25 to 36 feet in diameter—Towering mountain ranges—Startling precipices—Large limestone cave.
Yosemite, 1890	Middle eastern California	1,125	Valley of world-famed beauty—Lofty cliffs—romantic vistas—Many waterfalls of extraordinary height—3 groves of big trees—High Sierra—Waterwheel falls.
General Grant, 1890	Middle eastern California	4	Created to preserve the celebrated General Grant Tree, 35 feet in diameter—6 miles from Sequoia National Park.
Mount Rainier, 1899	West central Washington	324	Largest accessible single peak glacier system—28 glaciers, some of large size—48 square miles of glacier, 50 to 500 feet thick—Wonderful subalpine wild flower fields.
Crater Lake, 1902	Southwestern Oregon	249	Lake of extraordinary blue in crater of extinct volcano—Sides 1,000 feet high—Interesting lava formations.
Wind Cave, 1903	South Dakota	17	Cavern having many miles of galleries and numerous chambers containing peculiar formations.
Platt, 1904	S. Oklahoma	1½	Many sulphur and other springs possessing medicinal value.
Sullys Hill, 1904	North Dakota	1½	Small park with woods, streams, and a lake—Is an important wild animal preserve.
Mesa Verde, 1906	Southwestern Colorado	77	Most notable and best preserved prehistoric cliff dwellings in United States, if not in the world.
Glacier, 1910	Northwestern Montana	1,534	Rugged mountain region of unsurpassed Alpine character—250 glacier-fed lakes of romantic beauty—60 small glaciers—Sensational scenery of marked individuality.
Rocky Mountain, 1915	North middle Colorado	398	Heart of the Rockies—Snowy range, peaks 11,000 to 14,250 altitude—Remarkable records of glacial period.
Hawaii, 1916	Hawaiian Islands	118	Three separate volcanic areas—Kilauea and Mauna Loa on Hawaii; Haleakala on Maui.
Lassen Volcanic, 1916	Northern California	124	Only active volcano in United States proper—Lassen Peak 10,465 feet—Cinder Cone 6879 feet—Hot springs—Mud geysers.
Mount McKinley, 1917	South central Alaska	2,200	Highest mountain in North America—Rises higher above surrounding country than any other mountain in world.
Grand Canyon, 1919	North central Arizona	958	The greatest example of erosion and the most sublime spectacle in the world—One mile deep and eight to twelve miles wide—Brilliantly colored.
Lafayette, 1919	Maine Coast	8	The group of granite mountains on Mt Desert Island.

The above table is taken from *The Book of the National Parks* by R. S. Yard, Chief of the Educational Division of the National Park Service, Department of the Interior (1919), which gives a full account of the members of the entire National Park system, including detailed descriptions of their leading features.

During the year ending in October, travel to the national parks, not including Hawaii and Mount McKinley, reached the total of 756,027 visitors, an increase over the year before of nearly 70 per cent. The comparison is misleading, however, because the total includes 101,745 visitors to the two national parks which were created during the year, Lafayette, on the coast of Maine, and the Grand Canyon in Arizona.

Deducting these, we have 654,282 visitors during the year to national parks which were in existence the year before and were then visited by 451,691 persons. The rate of increase for the same 14 national parks was 45 per cent during the current year. The figures, compiled by the Department of the Interior, to and including October 15th, follow:

FIVE YEARS' ATTENDANCE AT THE NATIONAL PARKS

<i>Name of park</i>	<i>1915</i>	<i>1916</i>	<i>1917</i>	<i>1918</i>	<i>1919</i>
Hot Springs	*115,000	*118,740	*135,000	*140,000	*160,490
Yellowstone	51,895	85,849	35,400	21,275	62,261
Sequoia	7,647	10,780	18,510	15,001	30,443
Yosemite	33,452	33,390	34,510	33,527	58,564
General Grant	10,523	15,360	17,390	15,496	21,574
Mount Rainier	35,166	23,989	35,568	43,901	55,232
Crater Lake	11,371	12,265	11,645	13,231	16,645
Wind Cave	2,817	*9,000	16,742	14,431	26,312

Name of park	1915	1916	1917	1918	1919
Platt	*20,000	*30,000	*35,000	*36,000	*25,000
Sullys Hill	*1,000	*1,500	2,207	4,188	4,026
Mesa Verde	663	1,385	2,223	2,058	2,287
Glacier	14,265	12,839	18,387	9,086	18,956
Rocky Mountain	*81,000	*51,000	*117,186	*101,497	*169,492
Lassen Volcano .....	.....	.....	*8,500	*2,000	*3,000
Grand Canyon .....	.....	.....	.....	.....	37,745
Lafayette .....	.....	.....	.....	.....	*64,000
Totals	334,799	356,097	488,268	451,691	756,027

* Estimated.

The increases over the previous year for individual parks are: Hot Springs, Arkansas, 14 per cent; Yellowstone, 145 per cent; Sequoia, 100 per cent; Yosemite, 77 per cent; General Grant, 40 per cent; Mount Rainier, 26 per cent; Crater Lake, 25 per cent; Wind Cave, 80 per cent; Glacier, 97 per cent; Rocky Mountain, 67 per cent. Platt National Park in Oklahoma lost 30 per cent; Oklahomans were found in large numbers in other national parks and in California during the summer.

PAROLE SYSTEM. See PENOLOGY.

PASHITCH, NIKOLA. Serbian representative at the Paris Peace Conference. He was Serbian Prime Minister and a leader of the Radical party. In the tariff difficulty of 1905 with Austria-Hungary he led the Serbian resistance, and he directed the Serbian policy during the Bosnian crisis of 1908-09. During the late war he was the responsible head of Serbian affairs. His political aim was the amalgamation of the Serbians within the Austro-Hungarian Empire, and the building up of a greater Serbia.

PATTERSON, JOHN EDWARD. British author, died at Harrogate, England, in April. He was born in Deepcar, Yorkshire, England; ran away to sea when less than 13 years old, and passed 17 years in sea voyages and travels about the world. In 1897 he became a newspaper man in London and served for two years on the staff of the *Westminster Gazette* and edited or contributed to other periodicals. His publications include the following: *The Mermaid*; *The Lure of the Sea* (poems); *Ballads and Addresses*; *Fishers of the Sea*; *Watchers by the Shore*; *Tillers of the Soil*; *Love Like the Sea*; *The Story of Stephen Compton*; *His Father's Wife*; *Hillary Marttyn*; *Bond Slaves* (novels); *My Vagabondage*; *Sea-Pie*; *Epistles of the Sea* (autobiography); *The Sea's Anthology*.

PATTI, ADELINA. Famous operatic singer, died September 27, at Craig-y-Nos castle in South Wales. She was born in Madrid, Spain, on Feb. 10, 1843, the daughter of Salvatore Patti, a tenor of some note. She was brought by her parents to New York at the age of four, and when still a small child showed unusual gifts for singing. At the age of 10 she appeared in concert with Ole and Maurice Strakosch. She sang frequently in public from 1852 to 1861, taking part in concert tours during the period. She made her debut in opera in New York on Nov. 24, 1859, but scored her first real success in London two years afterwards, where she appeared as Amina in *La Sonnambula*. This was followed by a triumphal tour throughout Europe. Her popularity was extraordinary and she was the recipient of the highest honors from the courts of European countries. From the first she was recognized as one of the greatest artists of the time, her voice being an unusually high, clear, and pure soprano, and her execution show-

ing great artistic finish. She made many tours in America, the latest ones occurring during the present century. She received extraordinarily high prices for her performances, and is said to have earned in the course of her life as much as \$5,000,000. She married first the Marquis de Caux (divorced in 1885); second, in 1886, Ernesto Nicolini, who died in 1898; third, in 1899, a Swedish nobleman, Baron Cederström. After 1890 she was seen almost exclusively on the concert platform. She was a sister of Carlotta Patti (1840-89).

Patti was one of the few opera singers whose promise in early youth was completely fulfilled. From her first appearance as a child it was predicted that she would have a great future, and her success continued without a break. Her voice in youth was a very high soprano, but later became lower in range and was even called by Clara Louise Kellogg, who wrote her memoirs, a mezzo. She had an extraordinary capacity for learning notes and retaining them in memory. It was said that she could learn a new part by humming it a few times, and that she often went on tours without taking any musical scores. The extraordinary feature of her career was the admirable preservation of her voice even down to late middle life. This was attributed to the rigid system under which she lived and to her careful economy in the use of her voice. She practiced daily only for a short period, and she stipulated in her contracts that she should not be obliged to rehearse unless she wished to. As a matter of fact she did not attend rehearsals. Criticism of her pertains exclusively to her acting which was limited in range by her small stature and by a lack of emotional expressiveness unfitting her for the deeper rôles. On the other hand in regard to the quality of her voice and the perfect finish of her art as a singer, there was no question. Interesting memoirs of her will be found in Krehbiel's *Chapters of Opera*, Luigi Arditi's *Reminiscences*, and the memoirs by Clara Louise Kellogg.

PAVEMENTS. See ROADS.

PAYNE, WILLIAM MORTON. Educator and literary critic, died at Chicago, Ill., July 11. He was born at Newburyport, Mass., Feb. 14, 1858, and after 1868 lived in Chicago where he taught in the high schools after 1876. He served on the staffs of Chicago newspapers and magazines and became known as a critic of modern literature, especially verse, including several of the Continental literatures. He lectured in some of the leading universities. His writings include the following: *The New Education* (1884); *Little Leaders* (1895); *Editorial Echoes* (1902); *Various Views* (1902); *The Greater English Poets of the Nineteenth Century* (1907); *Leading American Essayists* (1919); *Björnstjerne, Björnson* (1910). He translated Björnson's *Sigurd Slembe* (1888); Jaeger's

Henrik Ibsen (1890); Björnson's *Arnliot Gelline* (1917), from the Norwegian; and he edited *English in American Universities* (1895); *American Literary Criticism* (1904); *Select Poems of Swinburne* (1905); and Swinburne's *Mary Stuart* (1908).

PEABODY MUSEUM. The normal activities of the Peabody Museum of Harvard University which were interrupted by the war were gradually being reestablished during 1919. But little field-work, however, was carried on during the year, and this was mostly of a preliminary nature and confined to certain sections of New England. Several valuable collections have been received, perhaps the most notable being the Bates Collection from the Maine shell heaps, numbering several thousand specimens, the result of many seasons' work by the late Prof. Arlo Bates of the Massachusetts Institute of Technology. The usual amount of laboratory research work has been accomplished. The second volume of the Harvard African Studies has been published, and considerable time has been devoted to the preparation of reports on the antiquities of Costa Rica by Mr. S. K. Lothrop, and on the Museum work in Northeastern Arizona by Mr. S. J. Guernsey, which is soon to be issued as a part of Volume VIII of the Museum "Papers." Dr. Tozzer's Maya-English dictionary is nearly ready for publication. Additional cases are being made for the main hall of the first floor of the new section of the Museum in which will be installed the ethnological collections from the Northwest Coast. The director of the Museum is Mr. C. C. Willoughby.

PEACE MOVEMENT. See INTERNATIONAL PEACE AND ARBITRATION.

PEACE AND ARBITRATION, INTERNATIONAL. There was no happening of importance in the realm of international arbitration in 1919. The public mind was wholly taken up by the Treaty of Versailles (q.v.) and the embodied League of Nations. In the words of one long time supporter of international arbitration—

Arbitration, 1919! I thought the word had been forgotten. Has there been any arbitration of anything, outside the Paris Peace Conference, where it is very dubious if anything was really arbitrated! Seriously, has there been any case of real arbitration of international differences during the past year in South America or elsewhere? I have lost all track of it, I have been so interested in the League of Nations controversy.

There was a wide-spread discussion of various phases of internationalism—especially in connection with economic, industrial, and political questions, but of the judicial arbitrament of international difficulties there was none. Perhaps this was due to the conviction that the League of Nations was an effective substitute. Of the discussion of peace in all its various aspects there was no end, not only in connection with the Treaty and the League, but in connection with military training, compulsory or arbitrary.

The peace movement during the year 1919 underwent changes destined to result in programmes consonant with the new order. The International Peace Bureau at Bern held a general assembly in the spring. A definite world movement among women developed during the year with headquarters at Bern and with numerous national organizations including one in the United States. League of Nations Societies were organized throughout Europe and other

countries. These societies are rapidly conforming their programmes to the conditions laid down by the Covenant of the League of Nations. The older societies have discovered that in large measure their former programmes have been realized in the Covenant. On the other hand there have arisen in various countries a series of League of Nations Societies of which the American League to Enforce Peace was first in point of time. These societies began life with a definite programme and show a disposition to continue to exist with programmes for improving and making better understood the present League of Nations. Several of such European societies held meetings at Paris in January, 1919, at London in March, 1919, and 16 of them participated in a Congress at Brussels, Dec. 1-3, 1919, under the auspices of the Belgian government. There was organized at that time the Union of League of Nations Societies, in which America was not represented owing to the failure of the Senate to advise ratification of the Treaty. The next Congress will be at Rome in April or May, 1920. The Dutch peace worker, B. de Jong van Beek en Donk, started a weekly periodical *The League of Nations* at Bern in April and is continuing it as a publication in which are printed official and other pronouncements respecting the League of Nations from all countries. The English League of Nations Union publishes a monthly service organ called *The League* since November, 1919, and a quarterly journal called *The Covenant*.

The official League of Nations started immediately after the signing of the Treaty of Peace with Germany on June 28, 1919. It has maintained its headquarters in London at Sunderland House and has collected not only a considerable library but much official data for its prospective duties. The Economic and Finance Section of the provisional organization of the League invited members of the International Institute of Agriculture and of the International Statistical Institute, together with leading statisticians, to a conference in London on Aug. 14 and 15, 1919. Seven suggestions were adopted relative to the organization and development of the work. The first International Labor Conference under the League of Nations and in virtue of Part XIII of the Treaty of Peace was held at Washington, Oct. 29-Nov. 29, 1919.

INTERNATIONAL PARLIAMENTARY UNION. There has been no meeting of the Inter-Parliamentary Union since 1913. There was a meeting October 7th and 8th in Geneva of the Council of the Inter-Parliamentary Union which Hon. James L. Slayden attended as a delegate from the American Congress. Its business was of an executive and confidential nature. It arranged to have a meeting of the Union itself some time during the year of 1920 at Stockholm. There were two members of Council present from Germany, Professor Eickhoff and Herr Schucking, who was one of the signers of the Treaty of Peace, who were courteously received, and both, being earnest pacifists were heartily in sympathy with the work in hand.

AMERICAN ASSOCIATION FOR INTERNATIONAL CONCILIATION. At the annual meeting of the association held on February 6th, Nicholas Murray Butler was reelected Chairman, Henry S. Haskell, Assistant to the Director of the Division of Intercourse and Education of the Carnegie Endowment for International Peace was con-

tinued as Acting Secretary. It was resolved that, in view of the obvious effort now being carried on through the press and otherwise, to sow the seeds of dissension among the Allied governments, systematic efforts should be undertaken to offset anti-British and Anti-French propaganda by furnishing the American newspaper press with articles and other material illustrating our friendly and coöperative relations with Great Britain and France.

During the year, the association published its usual long list of documents under the general heading *International Conciliation*. This year they dealt mainly with The League of Nations, and the Problems of the Peace Conference. Official material regarding the constitution, rules of procedure and general sessions of the Peace Conference was also published in considerable profusion. The demobilization of the Students' Army Training Corps and the resumption of normal student activities in the colleges and universities made it possible to stimulate through the International Polity Clubs the natural interest in the problems of the peace conference. The publications of the Association have been most helpful in this connection. Sundry important books were also distributed by the Association to these clubs. The set of large base maps of the continents, states and regions involved in the Great War published by The American Geographical Society have also been supplied to the International Polity Clubs upon request.

The trustees of the Carnegie Endowment have felt that the time has come when the educational work conducted throughout the summer schools of the country under their auspices should be carried by those institutions themselves, and it has therefore been decided to discontinue this undertaking. The Association, however, continued its work in the case of three special institutions: George Peabody College for Teachers, Nashville, Tenn., Lincoln Memorial University, Harrogate, Tenn., and New Mexico Normal University, Las Vegas, N. M. In the latter case, the Association sent Prof. John D. Fitz-Gerald, of the University of Illinois, not only to conduct a number of courses in the Spanish language, but also to assist President Roberts in organizing a conference of Spanish speaking teachers in the State. It is the hope of President Roberts and the Association in calling the conference to stimulate the study of Spanish throughout the State, and by the increased understanding which will result from the knowledge of a common language to foster better relations between the Mexicans and the people of New Mexico. The American Association for International Conciliation, which has in the past acted for the Division of Intercourse and Education in arranging for the courses, will act in close coöperation with the Institute of International Education, which has been opened recently in New York, with Dr. Stephen P. Dugan as director.

Three issues of *Inter-America*, two in Spanish and one in English, have been distributed. Newspapers and magazine comments and letters from all parts of the world indicate that the magazine is filling a need and making a distinct place for itself. A Spanish version of the United States Bureau of Education Bulletin No. 27, "Opportunities for Foreign Students at Colleges and Universities in the United States," by

Samuel Paul Capen, has been prepared by the Division and will be distributed by the Bureau of Education throughout the other American countries. The director of the Interamerican Division has accepted appointment upon Executive Council of the Pan-American Society of the United States, with a view to active coöperation with that organization. The Association undertook to issue the peace treaty, which, in view of its great length and the expense involved, will require a very careful adjustment of the other issues for the year accordingly. The demand was such that a second edition was printed. Its own publications are now printed in an edition of 35,000 and distributed to a subscription mailing list of some 27,000 names.

The unprecedented conditions prevailing in the colleges and universities during fall made it extremely difficult to continue to any extent the work with the International Polity Clubs, although lively groups were maintained at a number of women's colleges and at a few co-educational institutions. Although this work has been necessarily restricted, the Association has been able to assist in stimulating interest in the study of international problems by coöperating with the Committee on Education and Special Training of the War Department in the War Issues Course prescribed for the Students' Army Training Corps. Thousands of copies of the Association's documents were distributed to instructors and students, and a number of the most valuable official documents were reprinted for this purpose. The demobilization of the Students' Army Training Corps will make it possible to reorganize the Clubs; the proceedings of the peace conference will furnish field for discussion, and the widespread interest in the problems of the peace hold forth promise of the maintenance of active groups.

The Inter-American Division of the Association issued and distributed sundry bulletins, one in Spanish and Portuguese to a list of 15,000 names. The magazine *Inter-America*, in English and in Spanish, has been distributed. Six collections of North American works for South American libraries were gathered and shipped. The Inter-America Division entertained a number of Latin-American and Spanish guests, and has aided in placing a number of Latin-American students in educational institutions in the United States.

AMERICAN SCHOOL PEACE LEAGUE. It is the unanimous opinion of the Executive Committee of this organization that its annual essay contest is a most effective means of educating the youth of the country to the realization and responsibility of the unprecedented position in which the United States finds itself to-day in relation to other nations,—as a leader and as the hope of the world for the future of civilization. Therefore, the League conducted its essay contest, as usual, in 1918-19, the general subject of the essays being "The League of Nations." A record number of essays was received. Normal and high schools throughout the country expressed a genuine interest in the subject, and the principals and teachers coöperated heartily in planning for the study of this subject in their classes. In many cases, the essay writing was a required part of the year's work in history, civics, or English. Where an entire class competed, only the best essay was submitted to the judges.

SUCCESSFUL CONTESTANTS IN SEABURY PRIZE ESSAY CONTEST, 1919

Normal School Set

- First Prize*—Miss Agnes Irene Smith, State Normal School, Charleston, Ill.
Second Prize—Miss Lola Agnes Wood, State Normal School, Towson, Md.
Third Prize—Miss Mildred Lantz, State Normal School, Macomb, Ill.
1st Honorable Mention—Miss May Jackson Taylor, Normal Dept. of State College for Women, Tallahassee, Fla.
2d Honorable Mention—Miss Merret Winegarner, State Normal University, Normal, Ill.
3d Honorable Mention—Miss Marion Tait, State Normal School, De Kalb, Ill.
4th Honorable Mention—Miss Lillian M. Richards, State Normal School, De Kalb, Ill.

Secondary School Set

- First Prize*—Maurice M. Mercer, High School, Bowling Green, Ohio.
Second Prize—Miss Adele Resegand, High School, Kearny, N. J.
Third Prize—Miss Juliette F. Lyon, Central High School, Washington, D. C.
1st Honorable Mention—Robert L. Hershey, High School, Fitchburg, Mass.
2d Honorable Mention—Miss Irean Whitworth, High School, Poplar Bluff, Mo.
3d Honorable Mention—Milton Mead, High School, Cleveland Heights, Ohio.
4th Honorable Mention—Miss Ruth Rickarby, Barton Academy, Mobile, Ala.

The Secretary of the League, Mrs. Fannie Fern Andrews, has been working for the creation of an International Bureau of Education, which will coordinate much of the teaching in the various countries. Primarily for this purpose she spent five months in Europe during the Peace Conference, having been appointed by the United States Commissioner of Education and authorized by the Secretary of the Interior, to represent the United States Bureau of Education at the Peace Conference. She presented the plan for the establishment of an International Bureau of Education before the League of Nations Commission, of which President Wilson was chairman, with the request that the Bureau be an organ of the League of Nations. Although this was not done, the members of the Commission were much interested, and the Bureau will doubtless be established in the near future. The Secretary of the League, while in Europe, also wrote a Course of Study in Foreign Relations for the use of the army instructors in France. She lectured before the soldiers and other groups on the League of Nations and the educational work for peace. The League has also furnished hundreds of students throughout the country during the past year with literature to assist in debating on the subject of military training and the League of Nations. These subjects were chosen by many of the State debating leagues. Through the American School Peace League, therefore, the way is being paved for the education of children along lines tending to produce better international understanding and cooperation.

THE MID-EUROPEAN UNION (of which Thomas G. Masaryk is president and Professor H. A. Miller of Oberlin College was the first secretary), was associated for the following purposes:

(1) Of establishing a continuous barrier of free, cooperating, democratic nations against imperialistic aggression from the Baltic to the Mediterranean as a Bulwark of Freedom for the world. (2) Of helping toward the dismemberment of Austria-Hungary. (3) Of assisting

in the organization and protection of the new states.

Some of the accomplishments of the Union are: Presentation of resolutions to President Wilson urging the dismemberment of Austria-Hungary and pledging united support to the common cause. The awakening of the American people through insistent publicity to the solemn aspiration for freedom of the oppressed peoples of Mid-Europe and Asia Minor. Assistance in the preparation and publication of the Czecho-Slovak Declaration of Independence. The Union as a preliminary league of nations, in a four-days' conference in Independence Hall, Philadelphia, adopted principles of constructive international cooperation; of self-determination; of the rights of national minorities; of duty-free transportation for landlocked nations; and assumed the responsibility of seeing that the just claims of the nationalities concerned should be presented at the Peace Conference. Twelve nationalities signed a Declaration of Common Aims and proclaimed it with the ringing of the Mid-European replica of the Liberty Bell. A branch organization in Paris has been organized.

Conditions in Europe, however, have changed and do not seem as promising as they were a year since and Professor Miller has resigned. He was succeeded by Orlando Ducker.

The Poles, Yugoslavs, Czecho-slovaks, Russians, Armenians, Rumanians, and Zionists withdrew also, but the Lithuanians, Albanians, Greeks and Italians wanted to keep going for a while and they still have the name and office. President Masaryk is working in the direction of actually perpetuating the idea in Europe, and has made some progress. The Mid-European Liberty Bell has been taken to Prague with the condition that any of the countries concerned may have it for limited periods.

AMERICAN SOCIETY FOR THE JUDICIAL SETTLEMENT OF INTERNATIONAL DISPUTES has been inactive during the war and the immediate post-war periods.

LEAGUE OF FREE NATIONS ASSOCIATION formed in November, 1918, as the result of a series of weekly study conferences, participated in by 40 or 50 scholars, editors and publicists, during the summer and fall of that year, devoted its energies, up to the time of the final signing of the Treaty of Peace at Paris, to two lines of activities: (1) The popularizing in this country of the idea of a League of Nations; and (2) Urging upon the Paris Conference the creation of a real democratic league and also a treaty of peace which would be in essential harmony with the terms upon which the Armistice was based, that is, President Wilson's "Fourteen Points" and his subsequent addresses. On July 8th, as the result of a National conference of its members, this Association voted in favor of the ratification without reservation, the Treaty with Germany, including the League of Nations Covenant. Such ratification it contended would establish immediate peace, the world's most urgent need in the interest of order and progress; would abolish many international injustices which have proved prolific causes of war, and would create an agency for the ratification of remaining injustices and for the establishment of mutually advantageous and just relations between nations. It also voted that this ratification should be accompanied by a resolution declaring it to be the

purpose of the United States, as made possible by the League of Nations Covenant, to: (a) Press for the immediate restoration of Kiao-Chau and the German concessions in Shantung to the Chinese Republic; (b) to hold that nothing in the Treaty or the Covenant shall be construed as authorizing interference by the league in internal revolutions; or as preventing genuine redress and readjustment of boundaries, through orderly processes provided by the league, at any time in the future that these may be demanded by the welfare and manifest interest of the people concerned; (c) to call for the inclusion of Germany in the council of the league as soon as the new republic shall have entered in good faith upon carrying out the treaty provisions; for the inclusion of Russia as soon as the Russian people establish stable government; and for the full participation of both Germany and Russia on equal footing in all economic intercourse as the best insurance against any reversion to the old scheme of balance of power, economic privilege and war; (d) to press for the progressive reduction of armaments by all nations; (e) to throw its whole weight in behalf of such changes in the constitution and such developments in the practice of the league as will make it more democratic in its scheme of representation, its procedure more legislative and less exclusively diplomatic—an instrument of growth invigorated and molded by the active, democratic forces of the progressive nations.

More recently, the Association, through a Committee on Mexico, has been very active in attempting to bring about better relations with our southern neighbor and particularly to counter-act the country-wide propaganda of misrepresentation and distortion of actual conditions in Mexico. In October, the Association also announced the beginning of a study of the diplomatic relations between the United States government and the various Russian factions since March revolution of 1917, to be made by William Allen White, of Emporia, Kan., Dr. John Ryan of the Catholic University of Washington, D. C., and J. Henry Scattergood of Philadelphia, Pa. In general the League of Free Nations Association, in New York and through its branches elsewhere in the country, has sought to be a medium for the discussion of significant phases of international policy with a view to forming a sound and liberal public opinion, particularly on questions affecting the interests of the United States.

THE CENTRAL AMERICAN COURT OF JUSTICE ceased to exist at the expiration of the constituent treaty in May, 1918. Since then the Central American Bureau of Guatemala has sought the diplomatic assistance of Costa Rica, Honduras and San Salvador to reestablish the Court under a revised convention. Disturbed conditions in the Central American countries and other reasons have, however, prevented the success of this movement. The Central American International Bureau continues to function. It submitted on Aug. 20, 1919, to the Central American States a project of treaty for free trade among them. Standardization of educational curricula and the calling of a Central American Conference are other projects which have been actively interesting to the Bureau.

THE AMERICAN UNION AGAINST MILITARISM continued its efforts in opposition to a permanent system of compulsory military training in

America. Bulletins about congressional action on military training have been issued and a press bureau maintained. The headquarters are 203 Westory Building, Washington, D. C. Its chairman was Oswald Garrison Villard, and its executive secretary, Charles T. Hallinan.

During the year 1919, the activities of the AMERICAN SOCIETY OF INTERNATIONAL LAW, in addition to the publication of the quarterly numbers of the *American Journal of International Law*, were confined to a meeting of the Executive Council of the Society held in April, 1919.

THE AMERICAN INSTITUTE OF LAW held no meeting during 1919.

CARNEGIE PEACE FOUNDATION. Beginning with the year 1919, this Foundation will hereafter publish an abstract of the Year Book in addition to the Year Book itself—the latter containing all the matters in detail in which students and librarians will be interested. The epitome is designed to meet the needs of the more casual inquirer and to spread more widely information about the work of the Foundation. The work of the Endowment has been augmented and complicated by the great volume of work undertaken for the Department of State by the Division of International Law. The results of the war have, according to the latest annual report, greatly widened the field of usefulness and broadened its opportunities to be of service in the world. The report says "International relations have undergone a transformation in a character which it is impossible to fully measure as yet, creating conditions which have never before existed, and which can never wholly revert to the old methods. The victory of the Allied nations over Germany and her vassal states has entirely changed the outlook upon internationalism, and the work of the Endowment presents possibilities of usefulness not anticipated when it was organized. We are confronting a newly awakened world. Under such conditions the Trustees are to be congratulated on their courage, their patriotism and their prescience, in an attitude which, as was stated in last year's report, met with the ardent approval of Mr. Carnegie. Permanent peace seems a long way off still, and this work will become of increasing value and importance during the interval of world reconstruction now before us."

The entire series of Preliminary Economic Studies arranged for the Division of Economics and History by Dean David Kinley of the University of Illinois, and American member of the Research Committee of the Division, has imposed a large amount of additional work upon the Secretary's office, but it has saved the expense of duplicating the trained force necessary to handle it, and has thus effected a considerable economy, as well as contributed materially to the standardization and technical perfection of these publications. As plans develop, the number of monographs included in this series has outgrown the original intention; but it has been amply justified by the wide general interest in the series. They have proved especially useful in colleges and universities where large classes have been engaged in studying the problems of reconstruction following the war. This demand has compelled second editions of many of the studies, and the liberal policy of the Executive Committee in distribut-

ing free paper bound copies and bound copies at the nominal price of \$1 each, has attracted wide attention and much favorable comment. A number of distinguished scholars in many lines of investigation have contributed studies of such a thorough and helpful character that they have already taken high rank as permanent contributions to the economic history of the world's greatest war.

THE WORLD PEACE FOUNDATION (40 Mt. Vernon Street, Boston), during 1919 supported so far as it was able the official effort at Paris to provide an adequate League of Nations and to secure ratification of the Paris Covenant by the Senate of the United States. The Foundation made available to the public both the first draft of the Covenant of February 14th, and the final draft of April 28th. The arrangements for the famous Lodge-Lowell Debate on Mar. 19, 1919, were handled by the Foundation. Throughout the period close collaboration was maintained with the League to Enforce Peace and by an arrangement with the Massachusetts Branches of the League to Enforce Peace and the League of Free Nations Association, the organization had an intimate connection with the popular propagandist work, like furnishing speakers, organizing meetings, securing resolutions, etc., throughout New England. The Foundation took over from the War Department, General Staff, Committee on Education and Special Training, the remaining stock of the publications of the Committee on Public Information when that Committee ceased its activities. A million and a half of these pamphlets were distributed. The Foundation publishes a periodical entitled *League of Nations*, the numbers of which consist of monographs on subjects in current affairs of an international character. These are fully documented and are being extensively used in colleges and elsewhere.

THE WORLD'S COURT LEAGUE (Educational Building, New York). In January, 1919, the officers of the World Court League voted to form an alliance with the officers of the New York Peace Society, so that the two organizations might conduct their propaganda in common, under the name League of Nations Union. The chief executive officers of the World Court League and of the League of Nations Union are the same, ex-Senator Theodore E. Burton having been chosen president and Dr. Charles H. Levermore, secretary. The magazine up to that time conducted by the World Court League, under the name *The World Court* became the chief vehicle of propaganda for the Union, and the title of the magazine was changed to *League of Nations Magazine*. The Union became virtually a publication agency maintained by the two societies for the support of this magazine, which devoted itself especially to the advocacy of a permanent court of international justice and to the idea of international coöperation as expressed in the League of Nations. The project finally brought out of the Paris Conference, as a part of the Treaty, was approved and supported by the Union merely as the beginning of a new world organization out of which something much better was expected to grow. The magazine was distributed widely throughout the country until mid-summer. The conditions which at that time befell the publishing business obliged the Union to suspend the publication. Moreover the World Court League and

the New York Peace Society had previously been materially assisted in their propaganda work by the Carnegie Endowment for International Peace. The decision of the Endowment not to give any direct aid to the plan for a League of Nations then under discussion increased very materially the burdens under which the Union was laboring. The result was that at the present time the World Court League may be said to have disappeared in the League of Nations Union, and the Union, having spent all its available funds in active propaganda for the idea of a League of Nations, is now marking time, and hoping that, after the Treaty and the Covenant have finally been ratified by the Senate, the Union will once more be able to engage in its educational work.

What has been said here about the World Court League is, of course, largely applicable to its partner the New York Peace Society. The Society is at present the active constituent member of the Union. It has devoted all of its resources this year to the support of the principle of a League of Nations by means of the magazine and a considerable amount of pamphlet literature. It is still continuing the work.

THE LEAGUE TO ENFORCE PEACE (130 West 42d Street, New York), devoted its energies during 1919 first to the adoption at Versailles of a League of Nations Covenant and later to securing the ratification of the Treaty and its League provisions by the United States Senate. It was unrelenting in its endeavors in this behalf and utilized every available means: speeches, telegrams, the printed page, personal influence, to secure its end.

CHURCH PEACE UNION. By vote of the Union, and the World Alliance for Promoting International Friendship through the Churches, taken in December, 1918, these two organizations were combined with the same officers and a common office. Steps were taken early in the year to make effective this vote. The offices of the World Alliance at 105 East 22d Street, were vacated, and additional office space secured at 70 Fifth Avenue. Rev. Henry A. Atkinson, D.D., was appointed General Secretary, Rev. Frederick Lynch, D.D., Educational Secretary, Lindley V. Gordon, Associate Secretary, and Dr. Sidney L. Gulick, Secretary on Oriental Relations. Following the plans of the year 1918, the Church Peace Union has continued its fight for the League of Nations.

Early in the year the programme of education inaugurated by the vote of the Trustees in November, 1919, was continued. The National Committee on The Church and the Moral Aims of the War has met from time to time as one of the sub-committees and bore a large share of the responsibility for the propaganda in behalf of the League of Nations. After the Treaty of Versailles was signed, the Union began an active campaign throughout the country in its behalf, and sought by every possible effort to bring pressure upon the Senate to secure its ratification. For 12 months the Union pushed a vigorous literature campaign. Early in the year a Study Discussion Outline on the League of Nations was prepared, and distributed to 100,000 ministers. Churches, colleges, universities, libraries, high schools, and occasionally clubs have made use of the Outlines. Thousands of communities have used this course as a guide to their study of the subject. The

Union took poll of 80,000 ministers in the United States on the question of the Covenant. In response to this poll 16,125 men answered favorably and only 805 unfavorably. Of the 805, most were not opposed to the League of Nations, but were not quite sure as to the present Covenant. The favorable replies were grouped into a monster petition and presented by Vice-President Marshall to the Senate. The petition was read into the *Congressional Record*. The Church Peace Union cooperated with a Commission established during the war known as the Commission on the Interchange of Preachers and Speakers between Great Britain and America. Under the auspices of this Commission the Union sent to England: Drs. Percival Huget, Rev. Lyman Hough, Prof. William Adams Brown, Rev. Harry Foster Burns, Rev. George Gordon, Rev. Thurston Chase, Rev. Beverage Lee and Dr. Nehemiah Boynton. Dr. Lynch and Dr. Atkinson have also made two trips to Europe.

The World Alliance for Promoting International Friendship through the Churches is the functioning branch of The Church Peace Union, and as such called a meeting of the International Committee at The Hague, Holland, September 30th-October 2d. The meeting was marked by the spirit of good sense, and all actions taken showed a great deal of sound judgment. This was the first meeting since the signing of the Armistice in which German Protestants affiliated with delegates from the Protestant Churches of the Allies and America. During the last five months of 1919, Dr. George Nasmyth worked in Europe as International Organizer of the World Alliance, strengthening the National Councils already established, and organizing new ones. In the words of the Secretary "The year has been one of activity and at the same time of great perplexity, but we believe we have made a slight contribution to the cause of International Peace and Goodwill."

THE AMERICAN PEACE SOCIETY, an outgrowth of a peace society organized in New York City in 1815, and, therefore, the first peace society in the history of the world, itself founded at New York in 1828 and incorporated at Boston in 1848, continues its headquarters in Washington, D. C. Its general officers elected at its 91st annual meeting in May, 1919, were: President, Hon. James L. Slayden, San Antonio, Texas; Secretary, Arthur Deerin Call, Colorado Building, Washington, D. C.; Treasurer, George W. White, President National Metropolitan Bank, Washington, D. C. This Society continues to publish its official organ, the *Advocate of Peace*, a magazine published regularly since 1834. In its annual report for the year 1919, President Slayden says:

"The Secretary has spoken many times under the auspices of the United War Work Campaign, the Liberty Loan Campaign, and the Four-Minute Men's organization. Under date of November 29th it was voted that Messrs. Theodore E. Burton, of New York, Jackson H. Ralston, of Maryland, and Secretary A. D. Call and President James L. Slayden should represent the Society in Paris during the Peace Conference. Mr. Call left Washington for France November 29th, and arrived in New York, May 10th. It was not thought wise by the other members of the committee to go to Paris. It may be said that there is nothing in the inter-

national situation which alters in any way the principles for which the American Peace Society stands. Our faith in the principles of justice between nations, in the necessity for recurring congresses of the nations, in the upbuilding of law and order among the peoples, in the ultimate substitution of the modes of peace for the modes of war is unchanged and undimmed. The world agitation for a new international order transcends anything of the kind heretofore. This constitutes the challenge and the hope of the supporters of the American Peace Society and of all right-minded men everywhere."

Referring to his work in Paris the Secretary reported:

"The work which your Secretary attempted to do in Paris falls into two classes, that relating to the ADVOCATE OF PEACE, and that relating to the reorganization of a Society of Nations. The latter, not so important or so effective as he hoped, found expression in two pamphlets, one entitled *Suggestive Memoranda for the Honorable Commissioners to Negotiate at Paris*, submitted by the American Peace Society of Washington, D. C., which pamphlet was widely distributed not only in Paris but elsewhere, both in English and in French; the other entitled *Thinking It Through in Paris*, a pamphlet which was distributed for the most part in France. It was in Paris that your Secretary was privileged to assist in the editing of the volume, *Judicial Settlement of Controversies between States of the American Union*, which 'Analysis' was delivered by the Oxford University Press in Paris, April 21st. Upon the suggestion of your Secretary, *James Madison's Notes and a Society of Nations* was translated by Professor de Lapradelle, technical adviser of the French delegation at the Peace Conference. It may be added that your Secretary was glad to extend the circulation of this little book with some diligence among the workers for peace in Paris. It may be added that he has also had many conferences with all grades of representatives of the governments at the French capital to the advantage, he hopes, of the cause which this society represents and aims to promote."

The Secretary in concluding his annual report said:

"Your Secretary, gentlemen, is naturally thinking of the ways along which the Society might profitably extend its services. He is of the opinion that the history of our own land epitomizes the message which the nations need, and which when once they understand they will wish to heed. What the nations have accomplished in their upward climb has been in the main because of their reach for that justice which promotes life and liberty and happiness. This justice expresses itself in law, and the law is vivified in the courts. That has been the course of political advance and indicates the direction along which the groping nations must inevitably pass. For these reasons he believes that the American Peace Society, buttressed upon this faith, must, through its officers, its publications and its cooperating groups, intensify its efforts and broaden its activities for the education of the peoples."

WOMEN'S PEACE PARTY. At a meeting of the Board of Officers, November 3d and 4th a formal statement to the following effect was adopted:

"This group of women came together to pro-

ing the latter part of the year it began the publication of a monthly known as *The Young Democracy*.

AMERICAN UNION AGAINST MILITARISM published a number of pamphlets analyzing the proposals for universal military training or service.

NATIONAL CIVIL LIBERTIES BUREAU continued its service of advice and defense of legal cases involving a civil liberty issue, including its service of cooperating lawyers throughout the country. It also handled and presented complaints in regard to the prison treatment of conscientious objectors and secured modifications of the harsher forms of prison discipline, and agitated for amnesty for political prisoners and conscientious objectors through the organization of mass meetings, the publication of literature and the arranging for speakers. It assisted in fighting the cases of men being deported for their political opinions, and opposed the enactment of sedition legislation for peace time, by means of representation in Washington, by publication of pamphlets and by a news service to the press. It published a series of pamphlets and leaflets dealing with the foregoing subjects.

NEW YORK BUREAU OF LEGAL ADVICE agitated for amnesty, stressing particularly the conscientious objector issue and did valuable work in opposing the cases of deportation for political opinion, as well as giving publicity to the issue. Its chairman is Dr. John Lovejoy Elliott and its secretary, Fannie M. Witherspoon. Charles Recht was counsel.

LEAGUE FOR DEMOCRATIC CONTROL, through its Civil Liberties Committee, did active work in bringing to light the civil liberties issue in the textile strike at Lawrence, Mass. Its secretary is Mrs. Gertrude L. Winslow. Its magazine *Forward* has been merged with the *Socialist Review*, published by the Intercollegiate Socialist Society.

Bibliography. An extended list of books dealing with reconstruction in its larger phases has been prepared by Aksel G. S. Josephson of the John Crerar Library and published by the Gary Library of Law, Northwestern University Law School. The purpose of these notes is to call attention to a number of books and pamphlets that have appeared since the outbreak of the war, discussing the problems of peace and pointing forward to a new era that is expected to come after peace. As Mr. Josephson says in his introductory notes: "In these books leading personalities and young journalists vie with each other to place before the public their views of what form this new society ought to take all filled with a desire to give words to their thoughts, to assist in the solution of this the most important and most difficult problem that has arisen for centuries."

PEARL HARBOR DRY DOCK. See DOCKS AND HARBORS.

PEARS, Sir EDWIN. British lawyer and publicist, died at Malta, November 27. He was best known as the newspaper correspondent who brought before the public the Bulgarian atrocities in 1876. He was born at York, 1835, graduated with honors at London University, was called to the bar and became general secretary of the Social Science Association which office he held from 1868 to 1873. He settled in Constantinople in the latter year where he practiced in the consular courts and became president of the European bar. He was correspondent of the

Daily News at the time of the Bulgarian atrocities and sent to his paper in May and June, 1876, letters on the subject which led to the protests of Mr. Gladstone and greatly aroused public sentiment against Turkish rule. He passed his later years in writing upon Turkish history. His publications include *The Fall of Constantinople* (1885); *The Destruction of the Greek Empire* (1893); *Turkey and its People* (1911); and *Forty Years in Constantinople* (1915).

PECK, JOHN HUDSON. Lawyer and former president of the Rensselaer Polytechnic Institute, died at Troy, N. Y., May 4. He was born Feb. 7, 1837, graduated at Hamilton College, 1859, and was admitted to the bar in 1861, practicing at Troy, N. Y. He was prominent in institutions for the public welfare and was president of the Rensselaer Polytechnic Institute from 1888 to 1900.

PECKOVER, ALEXANDER, Lord, First Baron of Wisbech. British financier, whose death was announced on October 22d. He was born at Wisbech, Aug. 16, 1830, and was for many years a banker in a well known banking house. From 1893 to 1906 he was Lord Lieutenant of Cambridgeshire. He was one of the best known among the Quaker financiers of England. After his retirement he took especial interest in the collection of manuscripts, and also in meteorology, and he belonged to many learned societies.

PENANG. One of the Straits Settlements (q.v.).

PENITENTIARY. See PENOLOGY.

PENNSYLVANIA. POPULATION. The population of the State in 1910 was 7,665,111, and on July 1, 1910, it was estimated to be 8,936,091, a gain during the year of 138,000.

AGRICULTURE. The following table is compiled from a report of the federal Department of Agriculture.

Crop	Year	Acreage	Prod. Bu.	Value
Corn	1919	1,586,000	72,192,000	\$106,122,000
	1918	1,479,000	59,160,000	91,698,000
Buckwheat	1919	256,000	5,530,000	7,742,000
	1918	325,000	5,850,000	9,360,000
Oats	1919	1,189,000	36,859,000	29,487,000
	1918	1,210,000	47,190,000	37,752,000
Wheat	1919	1,664,000	29,055,000	62,758,000
	1918	1,530,000	25,551,000	54,679,000
Rye	1919	228,000	3,648,000	5,727,000
	1918	220,000	3,740,000	6,171,000
Tobacco	1919	41,000 a	54,120,000	9,200,000
	1918	45,600	64,752,000	9,065,000
Hay	1919	2,978,000	b 4,318,000	103,632,000
	1918	2,965,000	4,181,000	99,090,000
Potatoes	1919	254,000	25,400,000	39,116,000
	1918	275,000	22,000,000	33,220,000

a Pounds. b Tons.

MINERAL PRODUCTION. Production of anthracite coal in Pennsylvania in 1919 was the lowest in seven years. There were mined 86,200,000 tons, compared with 98,826,000 tons in 1918. Bituminous coal production reached the lowest level since 1915, with 458,063,000 tons, nearly 21,000,000 tons less than last year.

TRANSPORTATION. The operated railway mileage in the State in 1919 was about 13,139. The longest lines were the Pennsylvania, the Delaware, Lackawanna, & Western, and the Erie.

OFFICERS. Governor, William C. Sproul; Lieutenant-Governor, Edward E. Beidleman; Secretary of the Commonwealth, Cyrus E. Woods; Attorney-General, William I. Schaffer;

Auditor-General, Charles A. Snyder; Treasurer, Harmon M. Kephart; Adjutant-General, Frank D. Beary; Commissioner of Banking, John S. Fisher.

JUDICIARY. Supreme Court: Chief Justice, J. Hay Brown; Associate Justices, John Stewart, Robert von Moschizsker, Robert S. Fraser, Emory A. Walling, Alexander Simpson, Jr., John W. Kephart.

SEE OLD AGE PENSIONS.

PENNSYLVANIA, UNIVERSITY OF. A non-sectarian educational institution for men, located in 1740 at Philadelphia, Pa. The enrollment for the summer session of 1919 was 935, and for the fall term, 9921. The faculty numbered in 1919 813, an increase over 1918 of 197 members. Productive funds for the year amounted to \$10,802,420, while the income for 1919 was \$472,886. The library contains 481,190 bound volumes and 50,000 pamphlets. Provost of the university, Edgar Fahs Smith, Ph.D., Chem.D., Sc.D., Litt.D., L.H.D., LL.D.

PENNSYLVANIA STATE COLLEGE. A co-educational State institution at State College, Pa. The enrollment of the summer session, 1919, was 1045; in the fall it was 3065. There were 350 members of the faculty. Productive funds for the year ending June 30, 1919, were \$567,000; the income for the same period was \$1,165,877. The library has 74,000 books. New engineering buildings have been constructed during the year. The college was founded in 1885. President, Edwin Erle Sparks, Ph.D., LL.D.

PENOLOGY. The past few years have been marked by the adoption of new liberal policies with respect to those convicted of lawbreaking. These changes in social policies have resulted largely from the investigation of prison conditions by professional workers in penology and students of criminology. To-day the first function of the prisons is the protection of society and the second function is the reformation of the prisoners. These ancient institutions, formerly instruments of punishment and retribution alone, now serve with increasing effectiveness to prevent crime by restoring convicts to useful citizenship. The mental and physical condition of prisoners is considered of first importance. The sanitary conditions of the prisons are being improved, better prisons are being constructed, and departments of psychiatry are increasing in number. The use of humane treatment toward prisoners in the application of scientific methods fitting the psychology of the individual is sometimes characterized as sentimental emotionalism and criticized on the ground that it causes an increase in crime. However, those who have studied the subject thoroughly are agreed that the new methods are of great benefit to society at large as well as to the individual prisoner. The most important changes in policy include the gradual abolition of the practice permitting private employers to contract for the use of prison labor at nominal sums; the adoption of the parole system under which deserving prisoners may be given freedom under supervision; and the wider use of the probation system which substitutes for prison the guidance of probation officers in cases meriting clemency.

CALIFORNIA. This year the Legislature of California passed an act for the establishment of a department of psychiatry and sociology at the State penitentiary at San Quentin. The act provides for a scientific examination of all pris-

oners by this board and requires it to submit a plan for the treatment of each case. The plan is to aim at preserving social security and restoring prisoners to society as useful members.

PRISON LABOR. It is a generally accepted fact among penologists that imprisonment in idleness is harmful not only to the individual but also to society. In the past the use of convict labor, within or without prison walls, under State supervision or under complete private control, was usually leased by private employers for nominal sums. This system of utilizing prison labor is fast being supplanted either by some form of the "public account" system by which industries are carried on by the State; or by the "public works" system whereby convict labor is used for public construction; or by the "State use" system under which the State alone uses the products made by the convicts.

Penologists believe that the best way to prevent the convict from resuming his "old trade" on regaining freedom is to let him work at some honest trade he once pursued or teach him an honest one if he had none before entering prison. Recognition of this principle has led to the formation of industrial units in many prisons. In some institutions the prisoners receive the profits accruing from the sale of the articles they have made. This money enables the prisoners to support families while in prison, or if they are single gives them a good start on being discharged. The National Committee on Prisons and Prison Labor favors the "State use" system and is opposed to the "public account" system. It criticizes the latter system on the ground that it makes the establishment of only one or two industries within a prison possible. Such a system prevents convicts from being employed in the various industries in which they were employed before conviction and thus causes them to deteriorate in ability. Under the "public account" system the prisoners may be exploited by the community instead of the contractor. In Minnesota, prison-made binder twine is sold to the farmers at a price guaranteed to be less than the price of binder twine elsewhere. New Jersey within the past year adopted the "State use" system. The "public works" system is increasing in popularity. New and greatly improved roads have been the most important result of the adoption of this system. The New York Legislature has passed a bill appropriating \$25,000 for the employment of prisoners in the construction of State and county highways. The annual messages of the governors of several States indicated the general tendency in prison labor reform. All approved the use of convict labor for road improvement. Governor Sleeper of Michigan recommended the introduction of various forms of industries in State penal institutions which would thereby make them self-supporting. He believes that each convict should be paid a fair wage and that the money he earns should be placed to his credit and given to him on his discharge. Governor Withycombe of Oregon favored the repeal of the law which prevents prison-made articles from competing in the market with those made by free labor. Governor Cornwell of West Virginia urged the repeal of the law requiring the leasing of prison labor. In Ohio industrial units have been established in prisons and the State receives the products. In Massachusetts \$571,356 was realized from the sale of prison-made articles used

in public institutions. Sales amounted to \$132,867 at the Women's Reformatory at Schermerhorn and at the Men's Reformatory at Concord \$220,016 was realized. The total was \$924,239 and the net profits \$218,817. Among the articles made were shoes, blankets, aluminum ware, bedding, furniture, hosiery, and clothing.

PAROLE. Parole laws aim to keep under the supervision of parole officers, deserving prisoners who have been released from prison. Although the operation of parole laws has caused an increase in the length of sentences, the parole system is sometimes criticized as a cause of crime waves. The supporters of the system claim that the majority of offenses are committed either by boys who have never served in penal institutions or by old offenders who have been discharged outright. The records (*Journal of Criminal Law and Criminology*) show that about 15 per cent of paroled men commit other crimes and that about 10 per cent fail to report or leave the State, making a total of 25 per cent who fail to fulfill the conditions of their parole. The prison authorities of Maine report that from 1913, when the law went into effect, to 1919, 210 paroles were given in that State. There have been 52 violations or about 25 per cent. Of 692 men given a special industrial parole in Chicago, only 57 failed to fulfill all the conditions of the parole. About 30 per cent of these either became intoxicated or failed to report. Parole laws have been in operation for 20 years or more in New York, Massachusetts, Indiana, and Illinois. In these States a systematic supervision of paroled men is maintained and good results are secured.

CANADA. Over a period of nine years 11,097 prisoners have been released under the Canadian Parole Act. Of this number 9647 completed their parole successfully and 733 are in the process of doing so.

PROBATION. The character of the offense for which probation may be given is usually provided for by law and does not permit the judge to use very much discretion. The value of the property stolen and limitation to first offenders are usually the determining factors under the law. The use of probation is very limited except in two or three States as New York and Massachusetts. In order to obtain the best results from this system the probation officer should have about 50 probationers under his

supervision. Nevertheless he is often placed in charge of 300 persons and this excessive burden materially lessens his opportunity for effective probation. This year the annual conference of the National Probation Association was held in May at Atlantic City. The subject for discussion was "Standards for Effective Probation Work." Some of the topics were: Limitation of the number of probationers assigned to a probation officer; preliminary investigation of the delinquent before he is probationed; medical and psychiatric examination of delinquents, and kindred subjects.

PENSIONS. See OLD AGE PENSIONS.

PERAK. The most northerly of the Federated Malay States (q.v.).

PERSIA. A monarchy of Asia extending from the Gulf of Oman to the Caspian Sea. Capital, Teheran.

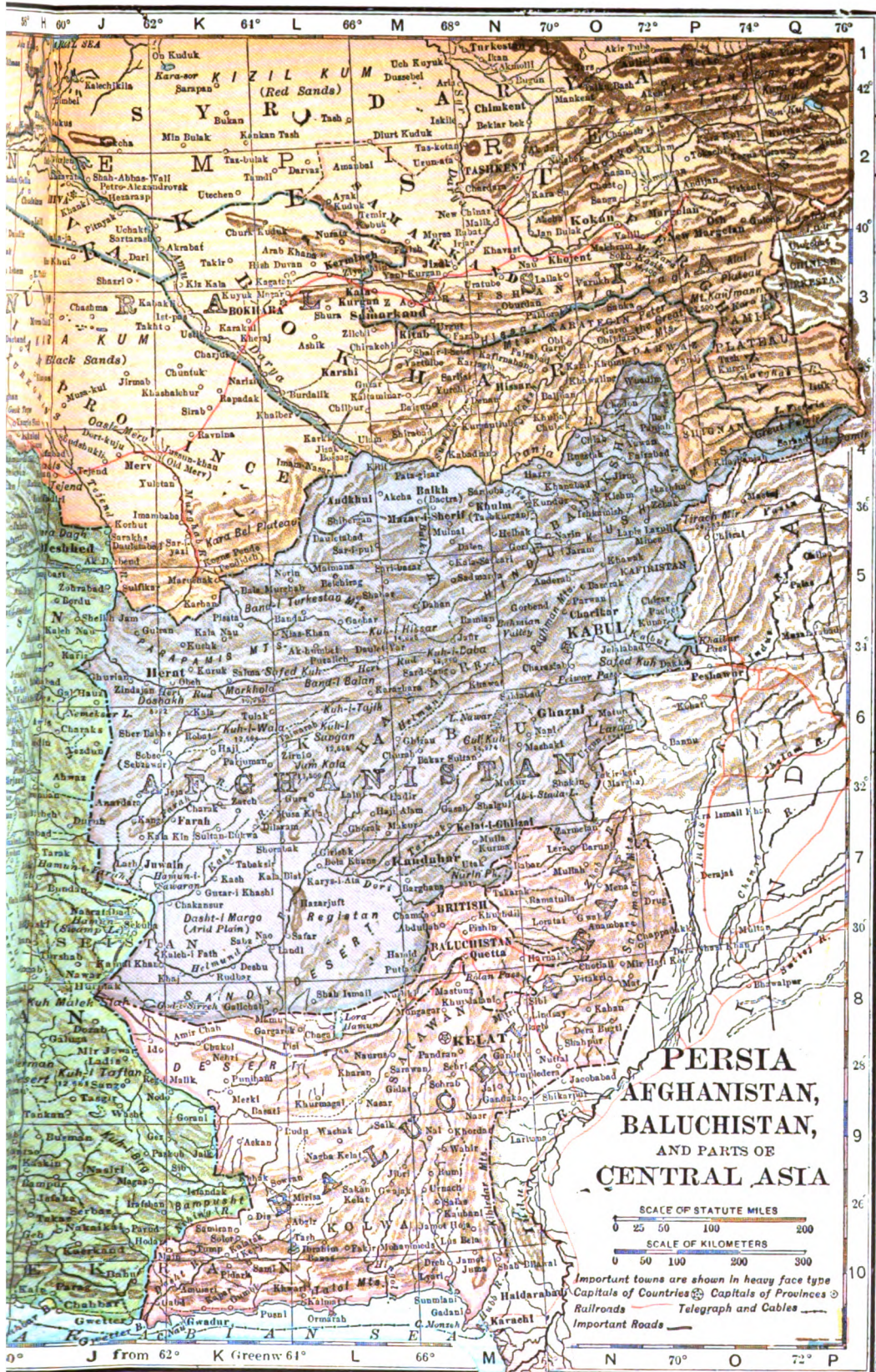
AREA AND POPULATION. Estimates of area vary from 628,000 square miles to 635,135 square miles; and estimates of population from 9,500,000 to 15,000,000, of whom about 2,500,000 are nomads. The chief cities with their estimated populations are: Teheran, about 350,000; Tabriz, 200,000; Meshed, 60,000 to 100,000; Ispahan, 80,000. Of the nomads, 720,000 are Turks, 675,000 Kurds and Leks, 234,000 Lurs, and 260,000 Arabs. A vast extent of the country is desert land at a high altitude and the density is not more than 15 to the square mile. A salt desert occupies the central and eastern part. The Karun is the only navigable river. In the north and west are heavy forests.

PRODUCTION. The chief agricultural products are wheat, rice, barley, fruits, gums, drugs, wool, cotton, and silk. There is an increasing production of opium and tragacanth. The centres of the celebrated carpet industry are Tabriz, Sultanabad, Hamadan, and Kerman. There are considerable mineral resources in the province of Azerbaijan, in Khorassan and Kerman, in the region of the Persian Gulf, on the slopes of the Elbuz range, and in the vicinity of Ispahan and Nain. They include petroleum, coal, iron, copper, and lead, but development is retarded by lack of transport (see below).

COMMERCE. The chief products for export and import are shown in the following table (from the *Statesman's Year Book* for 1919) in thousands of krans in 1916-17 (the kran equaled about 9 cents):

Imports	1915-16	1916-17	Exports	1915-16	1916-17
	1000 kran	1000 kran		1000 kran	1000 kran
Cottons	139,000	188,370	Fruits	71,635	90,426
Sugar	124,755	81,908	Carpets	12,954	13,471
Tea	34,292	23,141	Cotton	71,389	53,475
Gold and silver bars	9,084	19,011	Fish	78,116	9,870
Do. coin	3,378	11,608	Rice	61,778	63,017
Petroleum	10,744	13,096	Gold and silver coins	5,049	2,186
Yarn	11,144	18,551	Gums	7,497	8,716
Flour	4,633	6,640	Opium	41,732	41,597
Woolens	1,731	2,773	Wool	15,867	19,290
Indigo and cochineal	244	4,072	Cocoons	3,418	2,092
Haberdashery	4,183	5,238	Skins	10,358	8,771
Rice	7,836	10,953	Animals	4,749	16,631
Spices	2,963	2,058	Silk stuff	3,873	3,004
Wool	1,824	1,869	Cottons	2,216	2,091
Animals	1,480	3,775	Hides	6,556	5,209
Silk goods	1,311	2,883	Silk	556	601
Tin, zinc, and lead	482	1,159	Wheat and barley	4,828	2,694
Tobacco	2,100	810	Pearls and other precious stones	...	887
Copper and nickel	345	309			
Iron and steel	7,529	2,839	Drugs	2,784	2,401
Do. manufactures	24,339	13,004	Timber	882	692
Silkworm eggs	1,162	835	Tobacco	1,774	5,356
Timber	4,713	3,759	Petroleum	21,758	66,740





The distribution of the foreign trade by countries in 1916-17 is shown in the following table from the *Statesman's Year Book* for 1919:

From or to	Imports 1916-17	Exports 1916-17
Afghanistan	£165,585	£48,208
Germany	42,428	.....
Austria-Hungary	12,940	.....
Belgium	89,242	.....
China	100,686	500
Egypt	105,446	688,738
United States	8,440	279,954
British Empire	6,750,441	2,568,820
France and colonies	56,188	453
Italy	5,584	.....
Netherlands and colonies	116,000	.....
Russia	6,688,600	8,806,755
Switzerland	4,288	.....
Turkey	27,833	201,258
Muscat	3,327	2,000
Oman	155,111	172,263

The following more recent account of trade conditions is from the *British Board of Trade Journal*: In the earlier stages of the war Persia does not appear to have suffered any great loss. There was naturally some dislocation of trade, and the Turkish incursions to Tabriz and Kermanshah inflicted local damage, but the disturbance to trade which occurred was probably fully compensated by the eager demand abroad for opium and foodstuffs, and by the high prices paid for supplies and transport by the foreign forces operating in the country. On the other hand, after 1917 the country suffered severely. The retiring Russian troops did great damage, and the later occupation of Azerbaijan and the rich plains of the Ürumiah by the Turks caused these districts to be harried and depopulated. Much Russian paper money was accepted in payment for supplies and is still in Persia. The country, however, did not incur any unusual military expenditure during the war, and it received liberal assistance from Great Britain in meeting the loss of public revenue resulting from internal disorder. The greatest calamity was the drought and consequent famine throughout the country in the winter of 1917 and spring of 1918, followed by influenza in the autumn of 1918. The population was greatly reduced by hunger and disease, flocks and herds were much reduced in numbers, and through shortage of forage many beasts of burden were lost. The harvest of 1918 was excellent, and that of 1919 most promising, and though prices of foodstuffs remained high employment was active, and there was no longer real distress. Agriculture and a great number of trades lost heavily from interruption of commerce with Russia. Before the war imports from Russia amounted to 350,000,000 krans (at normal exchange the gold kran is worth \$0.17, the silver kran \$0.0875), of which one-third was sugar and nearly another third cotton tissues; exports to Russia amounted to 300,000,000 krans, raw cotton accounting for one-third and grain and dried fruits for another third. A great part of this trade was suspended in 1919.

The latest statistics available on the trade of Persia were those of the Persian Customs Administration for the year ending March 20, 1918, which indicate a decrease in foreign trade compared with the previous year. Seeing that so much of the foreign trade of Persia is with gold-standard countries the great increase in the exchange value of the kran ought to encourage im-

ports and decrease exports of commodities. The statistics, however, do not show that this has happened, probably because prices abroad have increased as much as the exchange has fallen; the ratio of imports to exports has been normal, imports being 58 per cent and exports 42 per cent of the total value of foreign trade. A great reduction in quantity of commodities imported is shown when one compares the figures for the years ending March 20, 1914 and 1918:

Articles	1914 Cwt.	1918 Cwt.
Sugar	2,500,000	960,000
Cotton tissues	420,000	235,000
Woolen tissues	8,700	2,200
Tea	90,000	30,000

The comparative returns on the trade of Great Britain and India with Persia for the years ending March 20, 1914 and 1918, were:

	1914 Krans	1918 Krans
Great Britain	180,000,000	170,000,000
India	104,000,000	253,000,000

The economic situation of Russia and the export prohibitions of the Russian government had their inevitable effect on the commerce of that country with Persia. The imports from Russia, which in 1916-17 reached 227,413,251 krans, fell to 107,482,215 krans in 1917-18. Russia, which always occupied first place in the list of countries in commercial relations with Persia, gave way to the British Empire, the imports from which actually became three times as great as those from Russia. Before the war they were no more than half. Egypt occupied third place in the list of countries solely because, commerce with other nations having been seriously affected by the war, large quantities of sugar were imported from Egyptian refineries, and petroleum was exported from Persia to Egyptian ports.

TRANSPORTATION. The importance of Persia as a link in the scheme of rail connection of India with Europe was actively discussed in 1919. This was a result of the development of the Bagdad Railway (q.v.) and the various military railways in Mesopotamia. In addition, a meter gauge line was operated between Bagdad and Quaritu on the Persian frontier, while construction was proceeding on an extension to Khermanshah which located between Bagdad and Hamadan is on the route to Teheran the capital of Persia. To the east there was manifested a tendency of the Indian lines to extend into Persia, so that there was every probability of a through rail line between Europe and India via Persia in a very short time. These projected lines when completed along with the proposed channel tunnel would afford England direct rail communication with her Far Eastern possessions.

The withdrawal of the British troops from the Caucasus and the consequent closing of that route removes for the time being what was in normal times the most important avenue for the transportation of goods into Northern Persia. All mails from Europe and America in 1919 were being sent by way of Kermanshah and Bagdad, requiring 90 to 100 days, as against 30 to 40 days when the Baku-Batoum route is open. On August 9th prominent merchants of Teheran formed a union to promote the commerce and

agriculture of Persia. The agreement with Great Britain signed at Teheran on August 10th promised to have a far-reaching effect on the economic and financial future of Persia. According to this agreement, advisers for the several ministries were to be furnished by Great Britain. It provided for the making of loans by that country to Persia, and Great Britain expressed its readiness to aid in improving the transport facilities of the country by the building of railroads, etc.

FINANCE. Gross customs receipts were given for 1916-17 at approximately £846,474. The latest available figures for the revenue date from 1913-14 when it amounted to £1,480,778.

GOVERNMENT AND HISTORY. The effort to secure constitutional government in 1906 having failed, the power is vested in the Shah and the cabinet. The Shah in 1919 was Sultan Ahmad (born Jan. 20, 1898), and the ministry at the beginning of the year was under the premiership of Vossough ed-Dowleh. The Persian Parliament addressed a memorandum to the Peace Conference on May 18th declaring it to be the desire of Persia to be completely independent and self-governing. It declared that the Anglo-Russian agreements of 1907 and 1916 had done much harm and begged that they along with all other illegal treaties and obligations be annulled; and at the same time the Persian government requested a loan of \$100,000,000 from the League of Nations in order to pay its debt and reorganize its government. (See **WAR OF THE NATIONS**.) An Anglo-Persian agreement was concluded at Teheran, August 9th, whereby England undertook to take part in the administration with a view to aiding in the maintenance of order and in the development of the country's resources. The Shah visited England, arriving in London, October 31st, for the purpose, he declared, of studying industrial methods, the systems of transport, and other aspects of economic life.

PERU. A republic of South America. Capital, Lima.

AREA AND POPULATION. The area is almost equal to that of Texas, New Mexico, Arizona, Nevada, and Utah combined, and is estimated at 679,600 square miles, though another estimate places it as high as 723,461. There has been no recent enumeration of population, but in 1919 plans were made for the taking of a new census. The number of inhabitants has been placed at 4,500,000. Lima had a population according to the estimate of 1913 of 143,500, but later estimates place it as high as 200,000. Other important cities are Callao, 34,346; and Arequipa, 35,000 to 40,000. The country is divided into 19 provinces including Tacna (possession disputed with Chile). Estimates of population do not include uncivilized Indians whose numbers are not known. For further details see preceding **YEAR BOOKS**. Efforts to promote immigration were made in 1919. On October 10th the government offered to pay the third cabin passage of any immigrant of white race (not a gypsy) and of three members of his family; to guarantee the payment of his lodging and maintenance for six days; and to impose no customs duty on his personal property, tools, etc. Elementary instruction is by law compulsory, but the law is not enforced, and it is free in the schools maintained by the government. Primary schools in 1916 numbered 2296 with 3304 teachers and

166,002 pupils; normal schools, 277 pupils; government high schools, 5202 pupils; and universities, 1791 students. The central university is at Lima and in 1918 had 1471 students and there are universities also at Arequipa, Cuzco, and Trujillo. Provision is made for the teaching of engineering and applied science in various technical schools and there are also military and naval schools.

PRODUCTION AND COMMERCE. The chief agricultural products are cotton, coffee, and sugar. The sugar production greatly increased after the beginning of the war, rising from an average annual output of 185,000 tons during the period from 1910 to 1914 to an output of over 820,000 tons in 1916-17. The acreage of good sugar cane land has been estimated at over 1,000,000, and about 100,000 have been planted with cane, but in 1919 efforts were being made to increase the planted area. The sugar production season is from October to February, and the output has been for the most part brown sugar with a polarization of 96 per cent or more. Cotton had about 140,000 acres with a production in 1916 of 27,603 tons. Efforts to develop the coffee industry by means of colonization have been made of late years and a concession to the Peruvian Corporation comprises 2,750,000 acres in Central Peru, but developments are retarded by labor and transport difficulties. There has latterly been considerable extension of cocoa cultivation and rice is grown extensively, its output in 1917 being 46,178 tons. Other products are tobacco, wines and spirits, wheat, olives, ramie, and corn. Cocoa-growing is an important industry and cocaine is manufactured in Lima and other cities. No later figures for mineral production were available than those given in the 1918 **YEAR BOOK**.

COMMUNICATION. Railway mileage in 1916 was 1724, of which 1117 were under the control of the Peruvian Corporation. In 1917 vessels entered at Callao in the foreign trade numbered 493, with tonnage of 1,070,885; cleared, 451, with 969,358. During 1919 the project was still in process of realization for the development of a railway system which would unite the three countries of Peru, Bolivia, and Argentina. A railway runs north from Oroya to Cerro de Pasco and the Central Railway, regarded as one of the most daring engineering constructions in the world, unites Lima with Callao, the port on the Pacific. Still another line runs south to Huancaayo. The first section, therefore, comprising 350 kilometers, from Callao to Lima and Oroya to Huancaayo was completed and the second section of the Pan-American from the last named point to Cuzco was under construction in 1919. A government resolution of August 20th, stipulated that the gauge of the Huncayo-Ayacucho-Cuzco Railway shall be 1 meter, and this aroused considerable discussion and criticism. Some of those interested in the project argued that the standard gauge of 4 ft. 8½ in., the same that has been used on the Central and Southern Railroads, should have been adopted. It was claimed by others that the cost of construction entailed by the standard gauge would be prohibitive. A uniform gauge was recognized as desirable, but since this is impossible the adoption of the meter gauge would make it possible to link up the government roads of Bolivia, Chile, Argentina, and Uruguay. The Ayacucho-Cuzco Railroad was one of the most important

projects planned by Peru, for it aimed to open up a rich interior region and also put the capital in railroad communication with the southern part of Peru making unnecessary the ocean trip from Callao to Mollendo. Profits of railways and steamships in 1917-18, 12,869,337 soles (sole—50 cents U. S. currency), an increase of 1,511,170 soles over 1916-17.

FINANCE. The Peruvian budget for 1919 estimated the receipts and expenditures at £5,169,147, distributed as follows: Ordinary receipts, £3,972,997; extraordinary receipts, £1,196,150; total ordinary expenses, £2,680,767, distributed in the following manner: Government, £634,690; foreign relations, £52,765; justice, £314,732; treasury, £454,304; war and navy, £806,064; industry, £418,209. Extraordinary expenses, to the amount of £2,286,570, distributed as follows: Government, £22,414; foreign relations, £19,955; justice and public instruction, £469,065; treasury, £1,386,103; war and navy, £34,444; industry, £355,587; and expenditures for the national Congress, £201,809. The estimated revenue for 1918 according to a British authority was £3,972,997; the expenditure, £2,680,767. The total receipts for the year 1918 were £1,675,767, an increase over 1917 of £91,065. In 1919 the President was authorized to obtain a loan of £300,000 gold at 7 per cent interest to be used in the construction of the Jatunhuasi Railway. The standard of currency is the libra, which is equivalent to the pound sterling, \$4.8665 in United States money. The libra is divided into 10 soles and the sole into 10 centavos. Silver by 1919 had gone out of circulation or was circulated at a premium and the Peruvian silver sole which represents $\frac{1}{40}$ of a libra in gold was worth outside Peru nearly $\frac{1}{4}$ of a libra. The paper circulation consists of bank notes. In 1919 the President was authorized to issue at par bonds of the international consolidated debt with a face value of £2,000,000.

Provision for the withdrawal of the paper currency issued in Peru during the war and for the transfer to Peru of the gold deposited abroad as a guaranty for this paper currency was made in the mandatory decrees authorizing the issues of paper currency. These provisions have been modified by an act recently passed by the Assembly and approved by the President. The following is a translation of this act and the provisions of former decrees which it affects: Article 1. When the international financial situation caused by the recent war shall have returned to normal, the President shall confer with the Junta de Vigilancia (the government organization created to superintend the issue of the paper currency to the banks and to take charge of the guaranties required of them), and shall determine in what manner and at what times the following operations shall be carried out: (a) The withdrawal of the paper currency issued during the war. The original act sanctioning such issues provided for their retirement within six months after the end of the war. (b) The transfer to Peru of the gold deposited in foreign banks as guaranty of this paper currency. The act authorizing such deposits abroad decreed that they were to be transferred to Lima as soon as the gold-export embargo should be lifted by the United States and England, and that said gold was to be deposited in the Junta de Vigilancia to increase the gold guaranty of the paper currency. (c) The control of the de-

livery to the Junta de Vigilancia by the banks issuing paper currency of either gold or paper currency which would enable them to withdraw equal amounts from the gold guaranties deposited abroad. Such delivery had been sanctioned by the original act authorizing the deposit of the gold guaranties abroad.

GOVERNMENT. The executive power is vested in a President elected for four years by direct vote, and a cabinet of six ministers; the legislative power in a Senate of 52 members and a House of Representatives of 116, also elected by direct vote. In each chamber one-third of the members as decided by lot retire every two years. The President, Dr. José Pardo, was succeeded by Señor Augusto B. Leguía, chosen for the term 1919-23. On August 12th the new President organized his ministry as follows: President of the council of ministers and minister of foreign relations, Dr. Melitón F. Porras; minister of the government and police, Dr. Alejandro Maguina; minister of justice and public instruction, Dr. Arturo Osorio; minister of the treasury, Don Fernando Fuchs; minister of war and navy, Gen. J. Ramonizarro; minister of industry, Dr. Matias Leon. Labor troubles disturbed the country throughout the year. On July 4th President Pardo as a result of the disputed election of May 18th was made prisoner by the Peruvian troops and police and Augusto B. Leguía was proclaimed President. The new President advocated a plan for federalizing the state.

See LABOR LEGISLATION.

PESSOA, EPITACIO. Brazil's representative at the Paris Peace Conference; president-elect (1919). He was a high authority on economic questions in Brazil and had been minister of agriculture and of finance, and one of the associates of Rio Branco when he was minister for foreign affairs. He represented Brazil at the third Pan-American Congress.

PETROLEUM. The petroleum industry was active in 1919, and not only were new fields opened and developed to satisfy the increased demands but additional marketing and refining facilities were being provided. In these attempts the general public became largely interested through the promotion of various schemes of greater or less merit which appealed to investors and speculators. As will appear from the accompanying table some 377,719,000 barrels of petroleum were marketed from wells and field storage in 1919, or an average daily production of over 1,000,000 barrels, the year being the first in which that figure was attained or exceeded.

PRODUCTION OF PETROLEUM IN THE UNITED STATES

PRELIMINARY SUMMARY OF PETROLEUM STATISTICS FOR 1919 AND FINAL FIGURES FOR 1918

(Exclusive of petroleum consumed on leases and of producers' stocks, except in California)

(Barrels of 42 gallons)

Field	Preliminary estimates, 1919	Final figures, 1918
Appalachian	29,232,000	25,401,466
Lima-Indiana	3,444,000	8,220,722
Illinois	12,436,000	13,365,974
Mid-continent:		
Oklahoma-Kansas	115,897,000	148,798,087
Central and North Texas	67,419,000	17,280,612
North Louisiana	13,575,000	13,304,399

Field	Preliminary estimates, 1919	Final figures, 1918
Gulf Coast	20,568,000	24,207,620
Rocky Mountain	13,584,000	12,808,896
California	101,564,000	97,531,997
Total production	377,719,000	*355,927,716

* Including 7,943 barrels produced in Alaska and Michigan.

The demand for domestic crude petroleum in 1919 apparently was less than in the previous year for the consumption by refineries and other consumers was slightly below that of 1918, as will appear from the accompanying table. This curtailment was due to a lessened demand for fuel oil for both marine and industrial purposes which in the beginning of the year showed a noticeable slackening as a result of the suspension of hostilities in the previous November.

CONSUMPTION OF DOMESTIC CRUDE PETROLEUM IN UNITED STATES
(Petroleum delivered to consumers)
(Barrels of 42 gallons)

Field	Preliminary estimates, 1919	Final figures, 1918
Appalachian	28,922,000	25,605,519
Lima-Indiana	3,442,000	4,098,155
Illinois	10,165,000	14,559,444
Mid-continent	198,901,000	199,715,878
Gulf Coast	17,417,000	24,424,032
Rocky Mountain	13,696,000	12,409,503
California	103,016,000	99,420,679
	375,559,000	*880,242,153

* Includes 7,943 barrels consumed in Alaska and Michigan.

On Dec. 31, 1919, the stocks of domestic petroleum held by pipe lines and marketing companies and by refineries that receive oil directly from the wells through their own pipe lines amounted approximately to 129,022,000 barrels. This marked a decrease of 2,579,000 barrels, as compared with the stocks of Nov. 30, 1919, and a decrease of 11,071,000 barrels from the maximum for the year on July 31st. Stocks on Dec. 31, 1919, were only 7,295,000 barrels more than on Dec. 31, 1918.

STOCKS OF DOMESTIC CRUDE PETROLEUM AT END OF 1919
(Barrels of 42 gallons)

Source of oil	December, 1919
Appalachian	4,014,000
Lima-Indiana	1,158,000
Illinois	4,471,000
Mid-Continent	78,037,000
Gulf Coast	11,389,000
Rocky Mountain	811,000
California	29,142,000
	129,022,000

It will appear from the above that the reserves of petroleum maintained in the United States were somewhat less than five months' consumption.

In practically all grades of petroleum there was an increase in price during the year. Pennsylvania grade increased from \$4 per barrel for high grade crude to \$5 at the end of the year. Other grades maintained about the same propor-

tional advance. Fuel oils of the North Louisiana and Gulf fields opening the year at \$1.25 and \$1.80 a barrel respectively, touched low points of 75 cents and \$1 respectively, but closed the year at \$1 and \$1.25.

During the year there was considerable drilling and development work ranging from systematic activity in prospecting and the renovating of old wells to wild cat exploitation. The Illinois field and the Gulf field had reduced production but in Texas new wells were opened while others that figured in the boom of the previous year showed exhaustion. Oklahoma showed important discoveries as well as large production while drilling in the Louisiana field was productive both of promise and immediate results.

During 1919 the United States exported 2,492,754,000 gallons of mineral oil valued at \$343,776,000 as compared with 2,714,619,000 in 1918 valued at \$344,265,000. The comparative figures for the leading products in the two years were as follows.

	1919	1918
Crude mineral oil, gallons..	248,874,000	205,829,000
Do., value	\$14,825,000	\$12,084,000
Illuminating oil, gallons...	976,305,000	491,109,000
Do., value	\$118,796,000	\$50,354,000
Lubricating oil, gallons...	277,591,000	257,317,000
Do., value	\$85,451,000	\$75,603,000
Gasoline, naphtha, gallons..	372,133,000	559,368,000
Do., value	\$92,049,000	\$139,593,000
Residuum, fuel oil, gals...	617,849,000	1,200,994,000
Do., value	\$32,653,000	\$66,630,000

The imports of crude mineral oil in 1919 amounted to 2,214,099,848 gallons, most of which came from Mexico.

Considering the imports and exports of crude petroleum the U. S. Geological Survey reported the excess of imports over exports:

	Bbls. of 42 gallons
Jan. 1, 1919, to Dec. 31, 1919 (preliminary figures)	46,854,959
Jan. 1, 1918, to Dec. 31, 1918 (final figures)	32,827,491

The biggest development during the year took place in Central and Northern Texas and Northern Louisiana, and in the Elk Hills of California. The production of Texas increased considerably, and the new field at Homer, La., showed great promise. Recent development in the Elk Hills pointed to the possibility of obtaining large supplies of light, refinable oil from that district if it were opened to development on a large scale.

The production of gasoline in August, 1919, was 326,000,000 gallons, as against 330,000,000 for 1918 and 254,000,000 for August, 1917. Stocks on hand were respectively 434,000,000, 285,000,000, and 298,000,000 gallons at the end of August for the years 1919, 1918, and 1917.

Gasoline specifications, for the purchase of gasoline by government departments, were adopted during the year. For the use of the specifications committee, 836 samples of gasoline on the market in the various parts of the United States were collected by the Bureau of Mines and analyzed. This survey indicated comparatively little change in the character of gasoline in the past year.

The production of kerosene in August, 1919,

was 219,000,000 gallons, as against 148,000,000 gallons during August, 1918. Stocks were 296,000,000 gallons in August, 1919; 424,000,000 gallons for the same month in 1918, and 511,000,000 gallons for the month of August, 1917. Decreased stocks in the face of increased production indicated an upward trend in the kerosene market.

There was a considerable overproduction of gas and fuel oil after the signing of the armistice because the demands of peace did not require the excessive output of war times. Stocks increased from 600,000,000 gallons in August, 1917, and 569,000,000 gallons in August, 1918, to 830,000,000 gallons at the end of August, 1919.

The gas and fuel oil situation seemed more satisfactory than it was earlier in the year, and markets apparently had been extended to take up the overproduction following the armistice.

Production of lubricating oils remained practically constant during the past year, the production of August, 1919, being 72,000,000 gallons, which was the same for the year previous; the production of August, 1917, was 64,000,000 gallons. Stocks increased from 115,000,000 gallons at the end of August, 1917, to 137,000,000 gallons for the corresponding month of 1918. Stocks of 110,000,000 gallons at the end of August, 1919, signified reduced consumption.

The consumption of petroleum and allied products in the United States has increased tremendously in recent years. Whereas in 1908 the country's production of oil was 178,500,000 barrels, and there was a surplus above consumption of more than 20,000,000 barrels available to go into storage, in 1918, only 10 years later, the oil wells of the United States yielded 356,000,000 barrels—nearly twice the yield of 1908—but to meet the demands of the increased consumption more than 24,000,000 barrels had to be drawn from storage. The annual fuel oil consumption of the railroads alone increased from 162½ to 369½ million barrels in that time; the annual gasoline production rose from 540,000,000 gallons in 1909 to 3,500,000,000 gallons in 1918.

The domestic production of gasoline for the first nine months in 1919 increased approximately 10 per cent over that for the same period in 1918; the foreign demand decreased 36 per cent and the domestic consumption increased 8 per cent; but the stocks on hand at the refineries on Sept. 30, 1919, were 38 per cent larger than the amount on hand Sept. 30, 1918.

The production of kerosene during 1919 was 26 per cent larger than the production of 1918, owing to the demand of foreign countries that were unable to obtain their supply during the war. Due to the release of tankers after the armistice, exports of kerosene increased 97 per cent over the exports of 1918; shipments to Alaska, Hawaii, Porto Rico, and the Philippine Islands were 43 per cent larger than the year before. Domestic consumption remained about the same.

In the first nine months of 1919 the production of fuel oil was 21 per cent larger than during the same time in 1918. Exports and shipments of fuel oil, during this period, decreased 26 per cent because of a smaller demand on the part of the Allies. Stocks at the refineries on Sept. 30, 1919, were 48 per cent greater than on the same date in 1918. Domestic consumption increased 29 per cent in 1919, probably due to the new con-

sumers of fuel oil for manufacturing purposes rather than to increased industrial activities.

In the first nine months of 1918 242,417,070 barrels of crude oil were run to the stills as compared to 283,195,814 barrels run during the corresponding period of 1919, an increase of 20,778,744 barrels, or approximately 9 per cent.

On Nov. 1, 1919, there were 220 steam tankers flying the American flag. The United States Shipping Board had 45 of 414,759 deadweight tonnage and a capacity of 2,903,000 barrels. The Standard Oil Company of New Jersey also had 45 ships of a deadweight tonnage of 448,355 and a capacity of 2,763,000 barrels. Approximately 250,000 deadweight tons owned by American interests were under foreign flags, with a capacity of 1,950,000 barrels. According to the Atlantic Coast Shipbuilders' Association there were 33 steam tankers under construction.

The 10 large pipe lines running from Eastern oil fields to tidewater were estimated to have conveyed over 200,000,000 barrels of oil in 1919, a substantial increase over the previous year.

The following table shows the number of barrels of petroleum produced in the United States from 1856 to 1919 with the value of the product.

PETROLEUM PRODUCTION IN UNITED STATES
FROM 1856 TO 1919

Year	Barrels	Value
1856	2,000	\$32,000
1860	500,000	4,800,000
1861	2,113,000	1,035,000
1862	3,056,690	3,209,525
1863	2,611,309	8,225,663
1864	2,116,109	20,896,576
1865	2,497,700	16,459,853
1866	3,597,700	13,455,398
1867	3,847,300	8,066,993
1868	3,638,117	18,217,174
1869	4,215,000	23,730,450
1870	5,260,745	20,503,754
1871	5,205,234	22,591,180
1872	6,298,194	21,440,503
1873	9,893,786	18,100,464
1874	10,926,945	12,647,527
1875	8,787,514	7,368,133
1876	9,132,669	22,982,822
1877	13,350,363	31,788,466
1878	15,396,868	18,044,520
1879	19,914,146	17,210,708
1880	26,286,123	24,600,638
1881	27,661,238	25,448,339
1882	30,349,897	23,631,165
1883	28,449,633	25,790,252
1884	24,218,438	20,595,966
1885	21,858,785	19,198,243
1886	28,064,841	19,996,313
1887	28,283,483	18,877,094
1888	27,612,025	17,947,620
1889	35,168,513	26,963,840
1890	45,828,572	35,365,105
1891	54,292,655	30,526,553
1892	50,514,657	25,906,463
1893	48,431,066	28,950,326
1894	49,344,516	35,522,095
1895	52,892,276	57,632,296
1896	60,960,361	58,518,709
1897	60,525,516	40,874,072
1898	55,864,233	44,193,359
1899	57,074,850	64,603,904
1900	63,620,529	75,989,313
1901	60,389,194	66,417,335
1902	88,766,916	71,178,910
1903	100,461,337	94,694,050
1904	117,080,960	101,175,455
1905	134,717,580	84,157,399
1906	126,493,936	92,444,735
1907	166,095,335	120,106,749
1908	178,527,355	129,079,184
1909	183,170,874	128,329,487
1910	209,557,248	127,899,688
1911	220,449,391	134,044,752
1912	222,935,044	164,213,247
1913	248,446,230	237,121,388
1914	265,762,535	214,125,215

Six provinces were organized into sanitary divisions during the year, so that only seven provinces at its close remained to be organized. Considerable activity has been displayed in health, education, and publicity, which consisted chiefly of lectures given by health officers and nurses in public gatherings, such as carnivals, exhibitions, "ferias," and garden days. District nurses continued their visits from house to house, treating the simple cases of diseases and giving advice, especially to mothers and parturient women, on sanitation, housekeeping, and balanced diets, demonstrations of which were given. The work for infant welfare was carried on more vigorously. About 150,000 houses were visited by the district nurses, who gave instructions in hygiene, nursing, and diet. That the value of this work was rapidly being realized is shown by the numerous calls for nurses and midwives and by the increased number of deliveries in the hospitals. Attendance in the dispensaries also increased, thus showing the greater confidence of the people in scientific treatment. One of the most important features of sanitary work was the medical inspection of schools, which gave the children considerable relief from their ailments particularly toothache, skin diseases, and tonsillitis.

FINANCE. The following table shows the balance receipts and expenditures in pesos during the years 1915-1918, inclusive.

	<i>Balance</i>	<i>Receipts</i>	<i>Expend.</i>
1915	8,559,228	29,558,626	27,883,738
1916	10,234,116	45,704,855	40,906,813
1917	15,032,159	54,781,241	45,408,717
1918	24,404,683	68,690,105	57,496,043

The budget system was introduced in 1917. It was characterized as tending toward greater clearness and publicity of the appropriations and toward the best coördination of the system of finance. The recent constitution of the council of state has a special significance to the financial system. That institution is called upon to outline the financial policy of the country, and the fact that the presidents, the people's representatives of both legislative houses are members of said body gives assurance as to the permanent soundness of the budget system.

The circulation at the end of the year 1918 reached 131,151,883 pesos, which, compared with 102,580,313 pesos for the previous year, gives an increase of 28,571,570 pesos in a year, and compared with 51,284,906 pesos for 1915, gives an increase of 79,866,977 pesos in three years. Based on the population as shown in the census of 1903, the circulation per capita was 17.36 pesos on Dec. 31, 1918, while on the same date of former years it was 13.44 pesos in 1917, 8.58 pesos in 1916, and 6.72 pesos in 1915.

LAW AND ORDER. The following account of internal conditions is taken from the official report: Five years ago the United States inaugurated a new policy in the administration of the affairs of the Philippine Islands. Radically differing from the one theretofore pursued in that it practically placed in the hands of Filipinos the reins of interior government in the islands, the new policy was condemned by some as the beginning of internecine troubles. During that period, however, a state of peace has existed throughout the islands.

Hardly nine months had elapsed after the an-

nouncement of the new policy was made, when the world was shocked by the news of war. The severe pinch of war began to be felt throughout the Philippines. The prices of articles of prime necessity began to soar so high that in 1918-19 they were almost beyond the reach of the common people. But the abnormal conditions were borne with patience. The inhabitants gave no concern or embarrassment to the government even in those moments of extreme national crisis. Undoubtedly this was due in the main to the change in policy which resulted in the intelligent understanding between the people and the government. Occasional and insignificant breaches of the peace occurred, such as Negrito unrest in the Province of Zambales, but such incidents were merely of local significance.

HISTORY. The principle of self-determination of nationalities set forth in President Wilson's addresses aroused among others the people of the Philippines to demand independence. A bureau of propaganda was established by them in Washington and devoted itself to meeting American objections to Philippine independence, and advancing arguments on its behalf. Its activity was in no way directed against the policy of the United States in the past. In fact the benefits of American protection were freely acknowledged and it was admitted that the United States had introduced measures of self-government in a liberal spirit. The whole question turned upon the readiness of the people for self-government. General American opinion while favorable to ultimate independence did not believe that the moment for it had come. The arguments of the Filipinos were to the effect that the country had already shown its ability to direct its own affairs, because a very large part of its administration had been for some time in the hands of natives. They pointed out the fact that all provincial governors except four were natives; that the municipalities were administered by elected native officers; that the two houses of legislature were composed exclusively of natives who were elected by direct popular suffrage, and that out of the seven members of the cabinet there was only one American. As to education the primary teaching was almost exclusively in the hands of the natives, and 44 per cent of the teachers in the secondary schools were natives. In the judiciary there were 19 Filipinos out of 26 judges of first instance and in the Court of Appeals there were four Filipinos to five Americans, and the President had always to be a native. To the question whether the islands were ready for self-government Governor-General Harrison had replied in the affirmative, but the main body of the American opinion still remained unfavorable. The arguments urged against Philippine independence were based according to the Filipinos on information derived largely from sensational motion pictures and newspaper reports which had to do with such matters as head hunting and the customs of the Moros and Igorrotes of the mountains, savage peoples who made up only 500,000 out of the 10,000,000 population. The Filipinos denied that they were to be regarded as a miscellaneous collection of unrelated tribes and said on the contrary that they formed a very homogeneous people speaking a common language and having common customs. There was neither race nor class antagonism among them.

They appealed to ex-President Taft in support of this view. The real objection in the United States was the fear of Japan. This the Filipinos derided as the "Japanese scarecrow." Nevertheless it was a view seriously held in the United States, where though there was no hostility to the Japanese there was a strong distrust of their imperialistic tendencies. As to the administration the Secretary of War, Mr. Baker, had said officially on April 4, 1919, that he knew he was expressing the opinion of the President when he declared that the moment had almost if not actually come when the Philippines should be made independent. Thus the promises of independence were renewed but in 1919 there was no indication that it would take a practical form at an early date. See ANTHROPOLOGY.

PHILOLOGY, CLASSICAL. In view of the conditions still obtaining in the foreign book trade, this article must be confined almost wholly to American and English work in classical philology.

To the *Loeb Classical Library* (see YEAR BOOKS for 1911, 1912, 1913, 1914, 1915, 1916, 1917, 1918) were added, on the Greek side, translations of Aeschines, *Orationes*, by C. D. Adams; *Clement of Alexandria*, by G. W. Butterworth; Homer, *Odyssey* (the first of two volumes), by A. T. Murray; *Pausanias* (the first of six volumes), by W. H. S. Jones; *Plutarch* (the sixth and seventh of 11 volumes), by B. Perrin; *Procopius* (the third of six volumes), by H. B. Dewing, on the Latin side, of Boethius, *Theological Tractates and Consolation of Philosophy*, by H. F. Stewart and E. K. Rand; Cicero, *Letters to Atticus* (the last of three volumes), by E. O. Winstedt; Vergil, *Aeneid VII-XII and Minor Poems*, by H. R. Fairclough. Of the authors of these translations, Messrs. Adams, Dewing, Fairclough, Murray, Perrin, and Rand are Americans; the rest are Englishmen.

To the *Oxford Library of Translations* has been added a second volume of *Selected Essays* of Plutarch, translated by A. O. Prickard (reviewed in the *Classical Review*, xxiii, by A. C. Pearson). Mention may be made of a metrical translation of Plautus, *Mostellaria*, by H. T. Schnittkind, which appeared in the *Stratford Journal* (1917), and a translation of Plautus, *Rudens*, by C. K. Chase, published by Hamilton College, at Clinton, N. Y. Plato, *Republic*, was translated by A. Kerr. A translation of Plotinus's complete works, chronologically arranged, was issued by the Comparative Literature Press (Grantwood, N. J.).

In the *American Journal of Philology*, xxxix-xl, edited by Professors B. L. Gildersleeve and C. W. E. Miller, were published "An 'Inspired Message' in the Augustan Poets," Elizabeth H. Haight (the author finds in the Latin poetry of the Augustan Age a "message," possibly coming directly from the Emperor, perhaps through Maecenas, his right-hand man in civil affairs, i.e. a deliberate attempt of the poets, especially Vergil, to emphasize the Apollo cult and the prestige of the Sibylline oracles, and more especially to identify Augustus with Apollo, and to interweave the exaltations of Apollo-worship with the Imperial theme); "The Date of the Vatinian Law," E. T. Sage (an attempt to arrange, in chronological order, the principal events of the year 59 B.C., the year of Caesar's consulship: the author holds that the Vatinian Law was passed late in this year); "The

'Thought' Motif of Wisdom Versus Folly in Greek Tragedy," L. Van Hook; "Curtius and Arrian," R. B. Steele (a study of the extent to which the Latin author Curtius, historian of Alexander the Great, used the Greek writer Arrian as a source); "References to Literature in Plautus and Terence," C. Knapp (a study of the allusions in the two great Roman comic writers, more especially Plautus, to the stories which figure so largely in Greek literature, particularly Greek dramatic literature—such stories as those of Io, Jason, Hercules, and the whole array of stories of the Trojan cycle: the allusions involve, at times, parodic reference to Roman playwrights, especially Ennius); "The Use and Range of the Future Participle," E. B. Lease; "Problems in Delphian Chronology," A. C. Johnson; "Satura Rediviva," Margaret C. Waites (another discussion of Livy vii. 2, the passage that figures so largely in the discussion of the dramatic satura among the Romans: see YEAR BOOK for 1912).

Reviews of special importance in these volumes are those of Ettore Bignone, *I Poeti Filosofi della Grecia Empedocle* (an elaborate critical study of Empedocles, and a translation, with abundant commentary, of the remains of the two works of the poet-philosopher), by W. A. Heidel; of C. W. Mendell, *Latin Sentence Connection*, by T. D. Ruth. Further, useful summaries were given of the contents of several foreign classical periodicals: of *Glotta* ix, 1 (1917), 2-4 (1918), by C. W. E. Miller; of *Hermes*, xlix, 3-4 (1914), 1 (1915), and liii (1918), by H. L. Ebeling; *Philologus*, lxxiv (1917-1918), by C. W. E. Miller; *Rheinisches Museum*, lxii, 1-2, by C. W. E. Miller, *Rivista di Filologia*, xlvi, 1-2 (1918), by K. F. Smith, xlv, 3-4 (1918), by W. P. Mustard.

From *Classical Philology*, xiv, edited by Paul Shorey, may be mentioned "Words for 'Battle,' 'War,' 'Army,' and 'Soldier,'" C. D. Buck (a very interesting paper, discussing the etymologies of 59 classical and other Indo-European words for battle, war, army, and soldier, and setting forth the wide extent to which some of the classical words have been appropriated by different modern nations); "Παραγραφὴ and Arbitration," G. M. Calhoun; "On the Use by Aldus of his Manuscript of Pliny's Letters," E. T. Merrill, (the author maintains, with Keil, that Aldus's readings are due far more to conjecture than to faithful reproduction of the lost Paris manuscript); "References in Plautus and Terence to Plays, Players, and Playwrights," C. Knapp; "The Number Three, Mysterious, Mystic, Magic," E. B. Lease; "The Columna Rostrata of C. Duilius," T. Frank (a discussion of the column set up by C. Duilius, in 280 B.C., to commemorate his naval victory over the Carthaginians, off the north coast of Sicily, near Mylae. This column, it may be noted, is the prototype of the Columbus column in New York City. The style and the orthography of the inscription on this column have both given trouble. Professor Frank thinks that Duilius, in the absence of Roman models, adopted the style of the Greek honorific inscriptions to be seen in every city in Sicily; he believes also that about 150 B.C. some one filled out, in the orthography of that day, certain places in the inscription which had become illegible, and that our extant version is due to a later restoration made in the Early Empire); "Scheria-Coreyra, II,"

this field is given in each issue of the *Historical Outlook*. In the paragraph above in which reference was made to the *Bulletins* published under the auspices of various Universities may be found entries which, with equal propriety, might have been recorded here. Here we may note "Lawyers of Ancient Rome," E. J. White, in *American Law Review*; "Agriculture in Early Latium," T. Frank, *American Economic Review* (a very suggestive paper); "Classical History and its Trend in America," F. F. Abbott, in the *Historical Outlook*.

In the *University of California Chronicle*, xx, appeared "Hellenic Standards for the Modern World," W. K. Prentice.

In the *Texas Review*, iii-iv (1918), appeared "Pan-Germanism in the Age of Pericles," W. J. Battle (a study of the attempt of the Athenians in the age of Pericles to transform their leadership among the Greek States into an Empire).

In the *University of Pennsylvania Law Review and American Law Register*, lxvi (1918), appeared "The Homicide Courts of Ancient Athens," W. W. Hyde, and "The Basilica—a Ninth Century Roman Law Code which Became the First Civil Code of Greece a Thousand Years Later," C. P. Sherman.

In the *Alumni Bulletin* of the University of Virginia appeared the "Letters of Thomas Jefferson concerning Philology and the Classics," edited by T. Fitzhugh.

The classical periodicals published in England still show the effects of the Great War (see the *YEAR BOOKS* for 1917 and 1918). The *Classical Quarterly* and the *Classical Review*, the two most accessible repositories of the writings of classical scholars in England, continue much reduced in size. From the former, xiii, we name "The Scheria of the Odyssey," A. Shewan (an argument that there is nothing supernatural about Scheria, the land assigned in the *Odyssey* to the Phæacians, or about the Phæacians themselves. This paper is supplemented by one in *Classical Philology*, xiv, in which Mr. Shewan argues that Scheria was an actual place, inhabited by a real people, and that it can be fitted into the Mediterranean world of the latest Minoan or Mycenaean period: in fact, Scheria was a Minoan settlement on the island of Corcyra, the modern Corfu); "Notes on the *Ecclesiastusae* of Aristophanes," T. L. Agar; "The Analogist and Anomalist Controversy," F. H. Colson; "Notes on Martial," A. E. Housman; "Phædriana," J. P. Postgate; "Ennius and the Punic Wars," Ethel Mary Stuart; "*Mulier Aries*, and other *Cruces* in Catullus," O. L. Richmond; "The Greek Adjectives ending in *ης*," R. McKenzie; "Notes on the *Birds* of Aristophanes," T. L. Agar. In each issue of this periodical there are "Summaries of Periodicals" (American, Dutch, French, German, Italian), which are very useful, though in 1919, as in the three or four years preceding, these "Summaries" were far less full than they were before the Great War began (see the *YEAR BOOKS* for 1917 and 1918).

From the *Classical Review*, xxxiii, we may name "The Homeric Hymns, XII," T. L. Agar; "Some Notes on the Religious Character of Apollo," S. Eitrem; "In Propertium *Retractiones Selectae*," J. S. Phillimore; "Livy and the Name Augustus," Lily Ross Taylor; "A Noble Anatolian Family of the Fourth Century," W. M. Ramsay ("a glimpse into the life of one of those Anatolian provincial families on whose impor-

tance in the development of Byzantine Asia Minor I have for many years been collecting information from scattered and inadequate sources"); "The Art of Euripides in the *Hippolytus*," J. A. S. Of the many reviews published in this periodical, we may single out for mention those of J. VanLeeuwen, *Enchiridium Dictionis Epicae*, by A. Shewan; of A. O. Prickard, *Selected Essays of Plutarch*, Vol II, by A. C. Pearson; of H. Sjögren, *M. Tullii Ciceronis Epp. ad Atticum, I-IV*, by A. C. Clark; of G. de Sanctis, *Storia dei Romani*, by Adela Marion Adam; of A. C. Clark, *The Descent of Manuscripts*, C. F. Walters (the reviewer heartily approves Mr. Clark's book, and seeks to reinforce its position by evidence purporting to show that Mr. Clark's principles had been applied by him successfully to the restoration, in various places, of the text of Livy. It may be noted here, however, that in a review in the *Classical Journal*, xiv, E. T. Merrill, an American scholar who has worked much on manuscripts, especially the manuscripts of Pliny the Younger, is decidedly critical, not to say skeptical, of Mr. Clark's methods and results. For the book itself, see the *YEAR BOOK* for 1918; its contents are well outlined in the two reviews).

In the *YEAR BOOK* for 1918, mention was made of the fact that there had been successfully launched, in Italy, a new series of texts of Latin authors, meant to take a place by the side of the famous Teubner series of texts in Greek and Latin, and the Oxford Classical Texts series. During the year the following additions to this series have been made: Vergil, *Æneid I-IX* (three volumes); Cicero, *Orationes Pro Sex. Roscio Amerino* and *De Imperio Cn. Pompeii* (one volume); Plautus, *Miles Gloriosus*; Tacitus, *Historiae I-II*; *Carmina Ludicra Romanorum: Pervigilium Veneris, Carmen De Rosis, Priapeorum Libellus* (one volume); Seneca, *De Ira*.

Attention may be called here to the fact that much valuable classical work is done in Italy. Important classical periodicals are *Atene e Roma*; *Athenaeum*; *Rassegna Italiana*; and *Rivista di Filologia e di Istruzione Classica*. Summaries of all four appear in the *Classical Quarterly* (see above); summaries of the *Rivista di Filologia* are to be found in the *American Journal of Philology* (see above).

Though the writing of Greek and Latin verse has never had the place in American classical scholarship that it long held, and to some extent still holds, in English classical scholarship, a fair amount of Latin verse at least is published in the United States, for example, in the *Classical Weekly*. In 1919, Anthony F. Geyser, S.J., gathered together his scattered pieces, into a pamphlet entitled *Musa Americana, First Series*. The 12 pieces in the volume include translations of the "Star-Spangled Banner," "America," "Battle Hymn of the Republic," "Just Before the Battle, Mother."

Of books that have come to the writer's attention, the following may be mentioned: E. Cochia, *Il Tribunale della Plebe la sua Autorità Giudiziaria Studiata in Rapporto colla Procedura Civile* (1917); T. Codrington, *Roman Roads in Britain* (3d ed.); T. L. Compagnotte, *Aes Signatum* (a study of early Roman coinage); R. S. Conway, *The Venetian Point of View in Roman History* (1918: in this lecture the author, emphasizing Livy's power of painting

pictures instinct with dramatic imagination and colored with lively human sympathy, connects it with the fact that he was born in Padua, a city of the Venetians, who, from earliest times, have been remarkable for artistic ability, ability which culminates in the great painters of the Renaissance); A. W. deGroot, *A Handbook of Antique Prose Rhythm, I. History of Greek Prose Meter: Demosthenes, Plato, Philo, Plutarch, and others*; G. Ferrero and C. Barbagallo, *A Short History of Rome, Vol. II, The Empire, 44 B.C.-476 A.D.*; W. W. Fowler, *The Death of Turnus: Observations on the Twelfth Book of the Æneid*; C. H. Herford, *The Poetry of Lucretius* (a lecture); W. Inge, *Philosophy of Plotinus*, 2 vols. (the Gifford lectures at St. Andrews, 1917-1918); Louise E. Matthaei, *Studies in Greek Tragedy*; G. Maurras, *Athènes Antique*; E. Meyer, *Cæsars Monarchie und das Principat des Pompejus: Innere Geschichte Roms von 60 bis 44 v. Chr.*; Gilbert Murray, *Aristophanes and the War Party: A Study in the Contemporary Criticism of the Peloponnesian War*; M. Niedermann, *Essais d'Étymologie et de Critique Verbale Latines* (reviewed by E. H. Sturtevant, in the *Classical Weekly*, xii); F. M. Nicholls, *Erasmus, Epistles, Vol. III* (a translation of Erasmus's correspondence, arranged chronologically, with commentaries, confirming the chronological arrangement, and supplying further biographical matter); Elizabeth O'Neill, *Rome: A History of the City from the Earliest Time* (a volume belonging to The Nations' History Series, praised in the *American Historical Review*, xxiv, 531); Sir William Osler, *The Old Humanities and the New Science* (a lecture containing interesting remarks on Aristotle and Lucretius); L. Pareti, *Storia di Sparta Arcaica* (a discussion of the pre-Greek and pre-Dorian period, with further treatment of the history down to the conquest of Messenia, with an Appendix on Cyrene); M. Platnauer, *The Life and Reign of the Emperor Lucius Septimius Severus* (for a review of this book, by A. E. R. Boak, see the *Classical Weekly*, xiii); J. E. Sandys, *Latin Epigraphy: An Introduction to the Study of Latin Inscriptions* (the first manual of this sort published in England: a very excellent book for beginners in this field); C. Zander, *Versus Saturnii* (3d ed.); L. M. Sweet, *Roman Emperor Worship*; U. V. Wilamowitz-Moellendorf, *Platon, Leben und Werke*, vol. 1.

PHILOLOGY, MODERN. The study of Modern Languages in the United States suffered a severe loss in the death of Professor Calvin Thomas of Columbia University, who passed away suddenly on Nov. 4, 1919. Born in Lapeer, Mich., in 1854, he became, after studying in Leipzig, instructor in German in his Alma Mater, the University of Michigan in 1878. He was called to Columbia University in 1896 as professor of German language and literature. He found time, amidst other duties, to write, and his numerous publications include a *Practical German Grammar*, (1895); *Life and Works of Schiller*, (1901); a *History of German Literature*, (1909); and *Goethe*, (1917). Because of his profound scholarship as well as his sound judgment—so well shown by the attitude he maintained during the war—Professor Thomas will always hold a high place in the esteem of his American confrères. His prudent counsel will be sadly missed now that the question has arisen of reestablishing Germanic studies on a sane

basis in American universities. (See **NECROLOGY**.)

As for Kuno Meyer, who also passed away during the year (see **NECROLOGY**), it is unfortunate that his high standing as a scholar has been impaired by the contentious and erratic opinions he expressed at frequent intervals during the great war. But notwithstanding the fact that he became the butt of ridicule of the laity, as a Celtist his contribution has been prodigious as well as accurate.

An interesting development in philological research is the establishment of the Euzko-Ikaskuntza, or Society of Basque Studies, at Guipúzcoa on Nov. 22, 1918. This society set at once for its task the publication of a review printed in Basque, Spanish and French, and devoted to studies of the language, literature and history of the Basque people. Courses in the Basque language will be instituted in all the leading universities of Spain. Though we have frequently called attention to studies on Basque in our contributions to the *YEAR BOOK*, we have expressed as often the wish—*desiderium*, fortunately, on the point of being realized—that this most interesting language might receive more serious attention. (For Basque, see *NEW INTERNATIONAL ENCYCLOPEDIA*, 2d ed., vol ii, pp. 746-747).

During the past few years there has been noted among our students a marked growth of interest in the universities of France. Thanks to the influence of the more serious men of the A. E. F., all of the Latin countries are seeking to attract students of our nationality. For the purpose of rendering assistance to those who contemplate spending some time abroad the Institute of International Education has been established at 419 West 117th St., New York. The director of this bureau, Prof. Stephen P. Duggan, has at hand complete information, as far as obtainable, regarding all foreign universities. In the same office is to be found the American representative of the Office National des Universités, who hopes to serve as an educational intermediary between France and the United States. And in order that we may better appreciate the aims of the French university, F. Buisson, former minister of public instruction, and F. E. Farrington have issued a volume entitled *French Educational Ideals of To-day* (Paris*), which consists of an anthology of articles by some of the molders of French educational thought of the present time. Likewise M. Caulléry, former exchange professor at Harvard, seeks to explain to his compatriots *Les Universités et la vie scientifique aux États-Unis* (Paris). In Belgium also educational reform is receiving most serious attention, as is obvious from L. de Paeuw's *La Réforme de l'enseignement populaire en Belgique* (Paris).

But it is probably in Spain that most active attention has been given to the needs of the American student. During the past academic year the ministry of public instruction sent to the United States a delegate, Prof. José Castillejo, who, after visiting our leading educational institutions, prepared a report on the character and functions of the Board of Extension of Studies (Junta para ampliación de estudios) of Madrid. This body not only seeks to place at the disposal of the foreign student its sem-

* When no date is given, it is understood that the work was published in 1919.

tórico-morfológica del verbo latino (Madrid, 1918). The following three works are deserving of mention: H. Bayer, *Origines des verbes andare, andar, annar, aller* (Prague, 1917); W. V. Wartburg, *Zur Benennung des Schafes in den romanischen Sprachen* (Berlin 1918); and L. Spitzer, *Aufsätze zur romanischen Syntax und Stilistik* (Halle, 1918). Of special interest to teachers is E. C. Kittson, *Theory and Practice of Language Teaching, with special reference to French and German* (London, 1918).

FRENCH. While the title of C. S. R. Collin's *Etude sur le développement de sens du suffixe -ata* (Ital.-ata, Prov., Oat., Esp., Port.-ada, Franç.-ee-ade) dans les langues romanes (Lund, 1918), is general, yet the author informs us that it is studied spécialement au point de vue du français. The 4th livraison of A. Tobler, *Altfranzösisches Wörterbuch*, edited by Lommatzsch (Berlin, 1918), made its appearance. C. Voretzsch, *Einführung in das Studium der altfranzösischen Sprache* (Halle, 1918), was republished for the fifth time. Of a more special nature are E. Brall, *Lat. foris, foras im Gallo-romanischen besonders im Französischen* (Berlin, 1918); G. Guillaume, *Le Problème de l'article et sa solution dans la langue française* (Paris); P. Larousse, *Miettes lexicologiques* (id., 1918); and E. Lerch, *Die Bedeutung der Modi im Französischen* (Leipzig). In French dialectology we have J. Gilliéron, *Généalogie des mots qui désignent l'abeille d'après l'Atlas linguistique de la France* (Paris); and Margot Henschel, *Zur Sprachgeographie Südwestgalliens* (Berlin, 1917). In Old French the following are the most important contributions that have come to our notice: G. B. Funderburg, *Feudal France in the French Epic* (Princeton); R. T. House, *L'Ordene de Chevalerie, an Old French poem* (Norman, Okla.); P. Prêteux, *Chez les Trouvères normands* (Fécamp, 1918); A. Stimming, *Bueve de Hantone*, (vol. ii, Halle, 1918); and K. Vossler, *Der Minneang des Bernhard von Ventadorn* (Munich, 1918). A Vicard, in *Les Fantômes d'une danse macabre* (Le Puy-en-Velay, 1918); discusses the funereal art of the Middle Ages as shown by the fresco of the Chaise Dieu. K. J. Riemens, *Esquisse historique de l'enseignement du français en Hollande du XVIe au XIXe siècle* (Leyden) is an interesting historical study. The Académie des Inscriptions et Belles-Lettres issued the 40th vol. of the *Notices et Extraits de la Bibliothèque nationale et autres bibliothèques* (Paris, 1918).

ITALIAN. A 2d edition of Polcari's translation of F. D'Ovidio and W. Meyer-Lübke's *Grammatica storica della lingua e dei dialetti italiani* (Milan) was published. The contributions to dialectology are as follows: A. Levi, *Le palatali piemontesi* (Turin, 1918); L. Pascale, *Il dialetto Manfredoniano ossia dizionario dei vocaboli usati dal popolo di Manfredonia* (Rome, 1918); and O. C. L. Vangenstein, *Leonardo da Vinci's Sprog* (Christiania, 1917); a stylistic and linguistic study of the language of the great artist. Of value to students and others are the following grammars and dictionaries: F. Hunziker, *Sommario di grammatica italiana* (Zurich, 1918); C. Frisoni, *Dizionario moderno italiano-español* (Florence, 1918); and A. Hoare, *Short Italian Dictionary* (2 vols., Cambridge), a disappointing work.

SPANISH. The 4th edition of R. Menéndez Pidal's excellent *Manual de gramática histórica*

española (Madrid, 1918), will be welcomed by scholars. The 11th vol. of J. Cejador y Frauca, *Historia de la lengua y literatura castellana* (Madrid), is devoted to the regional and modernist epoch (1888-1907). An interesting contribution to the early history of Spanish is E. de Hinojosa, *Documentos para la historia de las instituciones de León y de Castilla* (Madrid), which extends from the tenth to the thirteenth century. In dialectology mention should be made of the Royal Galician Academy's *Diccionario gallego-castellano* (Coruña) of which the 12th cuaderno was issued; and J. de Santiago y Gomez, *Filología de la lengua gallega*, (Santiago, 1918). In Chilean we have S. de Saunière, *Cuentos populares araucanos y chilenos* (Santiago de Chile); the 5th vol. (R-Z) of M. A. Roman, *Diccionario de chilenismos y de otras locuciones viciosas* (ib., 1916-18), which contains a supplement; and P. A. Valenzuela, *Glosario etimológico de hombres, animales, etc., y de vocablos incorporados en el lenguaje vulgar, aborígenes de Chile y de algun otro país americano* (Vol. i, ib.). To this list belongs also J. Jungfer and A. M. Pajares, *Estudios sobre apellidos y nombres de lugar hispano-marroquies* (Madrid, 1918). An odd little study is G. M. Vergara, *Apodos que se aplican a los habitantes de algunas localidades españolas de los pueblos próximos a ellas* (Madrid). Of a popular nature are J. Alemany y Bolufer, *Diccionario enciclopédico ilustrado de la lengua española* (Barcelona); and J. Prado, *El genio de la lengua y literatura castellana* (Lima, 1918), with special reference to the intellectual history of Peru. As a contribution to semantics we may mention F. Restrepo, *El alma de las palabras* (ib., 1918). Of interest to teachers are J. Rodríguez García, *Nociones de gramática castellana* (Habana); P. H. Ureña, *Antología de la versificación rítmica* (Mexico); J. S. Molina, *Enseñanza cultural de idiomas extranjeros* (Santiago, 1916); and L. Villon, *Dictados ortográficos y reflexionados sobre la ortografía* (Valladolid, 1917). M. R. Navas y Carrasco, *Diccionario general y técnico hispano-americano* (Madrid, 1918) is said to contain more than 138,000 words.

PORTUGUESE. Only two works are to be noted in Portuguese: W. Meyer-Lübke, *Beiträge zur Kenntnis der altportugiesischen* (Vienna, 1917); and F. da Silva, *Diccionario bibliográfico português* (vols. xx and xxi, Lisbon).

CATALAN. Jacme Conesa's fourteenth century translation of *Les histories troyanes* has been edited by R. Miguel y Planas (Barcelona, 1917). L. Spitzer, *Katalanische Etymologien* (Hamburg, 1918) contains some interesting etymologies.

RHETO-ROMANCE. P. J. Andeer, *Rhaetoromanische Elementargrammatik* (3d ed., Zurich, 1918) considers especially the Ladin dialect of Lower Engadine. The 32d vol. of the *Annali della società reto-romantscha* was issued at Chur (1918).

PHONETICS. Important general works in German which have just reached us are M. Leky, *Grundlagen einer allgemeinen Phonetik als Vorstufe zur Sprachwissenschaft* (Cologne, 1917); R. W. Schulte, *Abriß der Lautwissenschaft* (Leipzig, 1917); an introduction into the problems and methods of Phonetics; E. W. Selmer, *Satzphonetische Untersuchungen* (Christiania, 1917); and A. Hüppy, *Die Phonetik im Unterricht der modernen Sprachen* (Zurich, 1918); with special reference to English. A

most valuable contribution is G. P. Krapp, *Pronunciation of Standard English in America* (N. Y.). Other useful works in English are Theodora U. Irvine, *How to pronounce the Names in Shakespeare* (N. Y.); and R. P. Utter, *Every-Day Pronunciation* (N. Y., 1918). In French we have L. Bascan, *Manuel pratique de prononciation et de lecture françaises* (N. Y., 1918), useful for beginners; J. Broussard, *Elements of French Pronunciation* (ib.); P. Passy, *Lectures françaises phonétiques* (London, 1918); and R. M. Pierce, *Chart of the French Alphagam* (N. Y., 1918). A standard work in Spanish is T. Navarro Tomás, *Manual de pronunciación española* (Madrid, 1918). Mention should also be made of R. M. Pierce, *Chart of the Spanish Alphagam* (N. Y., 1918). And O. Brenner, *Deutsche Lautlehre* (Leipzig, 1918) closes the list for the present year.

PHOSPHATE. From figures compiled by the United States Geological Survey it is shown that 2,490,760 long tons of phosphate rock were marketed in this country during 1918, having a total value of \$8,214,463. This compared with 2,584,287 long tons in 1917 with a value of \$7,771,084. Florida, Tennessee, South Carolina, and certain Western States, in the order named, produce the phosphate rock of the United States, several thousand tons of that attributed to Tennessee being mined in Kentucky. In 1918 Florida yielded 2,067,230 tons of a value of \$6,090,106 as compared with 2,022,599 tons in 1917 which sold for \$5,464,493. In South Carolina there were sold 37,040 tons for \$164,650 as against 33,485 tons in 1917 sold for \$138,482. Tennessee marketed 374,535 tons in 1918 at a price of \$1,917,546 in comparison with 513,107 tons valued at \$2,126,353 the previous year. The Western States showed 11,955 tons in 1918 worth \$42,161, whereas the figures for 1917 were 15,096 tons of a value of 41,756. In 1918 there were exported from the United States 143,891 long tons of phosphate rock which was 6 per cent of the domestic production—the same percentage as was shown by the figures for the previous year when 166,385 long tons of phosphate rock left the country.

PHOSPHATIC FERTILIZERS. See FERTILIZERS.

PHYSICAL CHEMISTRY. See CHEMISTRY, GENERAL PROGRESS OF.

PHYSICS. The year 1919 is notable in physics for events of unusual novelty and importance, three of them of almost sensational interest—the confirming of Einstein's quantitative prediction of the effect of gravity on light, the success of Rutherford in disintegrating the nucleus of the nitrogen atom, and correlation of atomic number, structure, and properties by the Langmuir postulates.

To confirm Einstein's prediction that gravity affects light would alone have made the year memorable. That the precise magnitude of that deflection as predicted by him should also have been verified was especially astonishing since it is in strict accord with Einstein's own revolutionary theory of relativity but more than twice the value to be looked for from classical physical conceptions. At the solar eclipse of May 29, 1919, light from the stars observed near the sun was found to be deflected 1.75 seconds of arc. This event combined with Einstein's success in accounting for the discrepancy in the orbital period of Mercury, have given new strength to

his theory which demands a recasting of current cosmic philosophy and physical conceptions. The ether theory seems untenable, fruitful as it has been, and time and space become derived abstractions of a secondary order. Doubtless the universal units of mass and action will soon command the dominant place they deserve in physical theory. It will be remembered that Einstein computed that the orbital ellipse of Mercury should undergo a rotational shift around the sun at the rate of 43 seconds of arc per century greater than Newton's laws would require. The actual shift was really observed and found to accord with Einstein's prediction within 1 second of arc—a striking support to Einstein's theory.

It will be of keenest interest to note with what ingenuity and promptness our physicists will make use of the deviation of light, for this newly-found phenomenon may easily become a tool of research of the utmost importance. In any event, Einstein's theory, in the words of Planck, "surpasses in boldness everything previously suggested in speculative philosophy and even in the philosophical theories of knowledge," and that "the revolution introduced into the physical conceptions of the world is only to be compared in extent and depth with that brought about by the introduction of the Copernican system of the universe."

Hardly less interesting and significant is the success of various authors, notably Langmuir, in correlating atomic number, structure, and properties. Langmuir's postulates are perhaps the most complete correlation ever attempted. He makes a series of assumptions, based partly upon the ideas of Kossel and Lewis, and gives a simple formula based on the atomic number, from which the atomic structure may be derived. From this structure many properties follow naturally, being especially successful from the chemical point of view. The Bohr atom is brought into question, and the issue is raised acutely between the satellite-electron and the fixed-position-electron theories. Langmuir, following others, takes the cube as type form, its eight angles as loci for the electrons, giving the octet of the periodic system. Valency is uniquely accounted for as the linking power of incomplete atoms operating to complete their octaves. The inert gases with all bonds satisfied, have no combining power. This is neatly derived from the postulates. Chemical combinations are made beautifully graphic by his principle of convalency. Altogether, his theory throws such new light on the periodic system, on unique properties of certain elements and groups of elements, and gives such a workable grasp of the periodic system in terms of atomic number that it will doubtless command much attention from physicist and chemist. Its success has been unique in predicting similarity of properties between elements which have merely the external layer of electrons, in similar structural grouping. Not only may new compounds be freely predicted but it is possible to predict the crystalline form of compounds not yet synthesized.

A third event which may prove of strategic importance in atomic research was Rutherford's apparent success in breaking down the positive nucleus of the nitrogen atom. Using the alpha particle (helium) from Radium C, Rutherford had a projectile with a velocity of 10,000 kilo-

completeness of the uranium-radium series and suggests structural formula and logical symbols for the radioactive elements. These indicate the atomic weight, valency, and place in the periodic system.

The energy of magnetic storms is derived according to Chapman, from the streams of electric corpuscles emitted from the sun, since the heat energy of the atmosphere is inadequate and the rotational energy of the sun is not available on any existing theory of transformation. Chapman outlined a theory of magnetic storms treating data from different stations for 40 storms. Krogh gives new results on the composition of the atmosphere and a programme of research. He lowers the hydrogen percentage to less than 0.0005, shows that nitrogen is remarkably constant, that oxygen varies inversely with the carbon dioxide. He regards nitrogen as a geophysical constant, measurable to within 0.001 per cent. Veronnet, working from the kinetic theory of gases, finds the limit of the atmosphere for oxygen to be 145 kilometers and 166 kilometers for nitrogen, and gives the general theory for other planets. Gourgéois gives a new method of registering wind velocity and direction, using explosions from material carried by a balloon one meter in diameter, weighing 200 grams. The explosions can be recorded at distances of 15 kilometers.

Much interesting work has been done on the properties of materials which cannot even be summarized. The most striking general result is the rapid closing-in on the problem of correlation of structure with properties. When properties can be predicted from form (as with Langmuir and Hull) we begin a new period of progress which appeals to the imagination in the most vigorous manner. So advanced is our knowledge of the structure of matter becoming that systematic researches in the field of such correlations would be of the utmost practical and theoretical value. Fehrlé calculates the place of the chemical elements in the periodic system using only the atomic weight and density. Unwin finds the work of indentation in hardness testing proportional to the volume of indentation, and that indentation is proportional to the area normal to its application. Bassett and Davis correlate hardness measurement with grain size for brass, showing excellent agreement when heat treatment and rolling are standard. Richards and Boyer have purified gallium and determined its density and compressibility. Bates has found gallium well adapted for use in the cadmium vacuum lamp, as a substitute for mercury. Gallium alloys well, makes the cadmium workable, has very few lines in the visible spectrum, so that the vapor lamp made with gallium-cadmium electrodes has proven to be a brilliant and useful source of monochromatic light in optical research.

The increased sensitiveness of radiation-detecting instruments during the war permitted some interesting experiments, for example the use of the human face, shielded and unshielded, at distances as great as 600 feet. The painted and unpainted sides of a piece of sheet iron could easily be detected. It was also possible, by means of a thermopile, to follow the path of an invisible airplane at night at a distance of more than a kilometer. Such results were made possible by the pioneer work of Coblentz in developing radiation detecting instruments of the

supersensitivity required for measuring the heat of the stars. In this connection the physics of the war is just beginning to be published and so great has been the value of applied physics that there is little doubt that a new era of research has begun and will be sustained by the increased recognition given by public and private agencies. The Bureau of Standards, our national physical laboratory, applied the interference of light waves to the production of munitions gauge standards of a perfection and accuracy about 100 per cent better than the best hitherto produced on a commercial scale. The same laboratory devised two sound-ranging systems for locating enemy batteries, the latter system being so well arranged that 3-inch guns could be located at a distance of several miles within the length of the gun.

Among the many branches of applied physics which have experienced a rapid development since the close of the war, radiocommunication may be mentioned. Kolster developed a practical method by which automatic radio waves are sent out from lighthouses in fog or storm, and by use of direction finders the position of vessels with respect to the lighthouses may be ascertained on shipboard. Recent tests have been very successful and equipment for vessels has been ordered from manufacturers. It was found that radio signals of long-wave length are at times deflected as much as 90 degrees from their course. Fortunately shorter waves show only slight changes of this sort. The causes of the variation in course were investigated by a number of observers, including Taylor, Kinsley, and Kolster. The over-ocean record breaking trip of the NC-4 was successfully terminated by the use of the radio compass (direction finder) after the magnetic compass had been thrown off its gimbals by the rough weather. The plane was headed 60 degrees off course toward Africa when the radio compass gave bearings which enabled the plane to pick up the guiding destroyer.

On the whole the year has been quite remarkable for the vision which calls for the breadth and sweep of conception of the astrophysicist in his cosmic philosophy as well as the logical penetration of Rutherford, Hull, Langmuir, and others who armed with logical insight experimentally analyze and synthesize atomic structure, molecular structure, and crystal structure and find so much of the secret of the properties of the elements and compounds. But doubtless to Einstein with his revolutionary conceptions is to be accorded the central position for his ideas may give a new turn to physical thought and experiment.

PICHON, STEPHEN. French representative at the Paris Peace Conference. He held the office of Minister of Foreign Affairs. He was born in 1857 and had a varied career as a diplomat, representing France in one capacity or another at Haiti, in South American countries, in China, etc. He was appointed foreign minister and held that position in several successive ministries. He was a radical in politics and after 1878 closely allied with Clemenceau.

PICKERING, EDWARD CHARLES. Astronomer, died February 3. At the time of his death he was professor of astronomy in Harvard University and director of the Harvard College Observatory. He was born at Boston in 1846 and graduated at Harvard in 1865. He became pro-

fessor of physics at the Massachusetts Institute of Technology where he established the first laboratory in which students employed directly the instruments of measurement and observation. In 1877 he became director of the Harvard College Observatory which position he held for nearly 42 years. His observations and his pioneer work in visual photometry, stellar photography and stellar spectroscopy had important results and a brief description will be found in an appreciation written by Prof. Henry Norris Russell in *Science*, February 14th.

PILLSBURY, JOHN ELLIOTT. Rear Admiral in the United States navy, died at Washington, D. C., December 30. He was born at Lowell, Mass., Dec. 15, 1846, graduated at the United States Naval Academy, 1867, and in 1892 became lieutenant-commander, and in 1898 commander. During the Spanish-American War he commanded the *Vesuvius*, a dynamite steamer. He served a year in the hydrographic office and 10 years in coast survey service, and he was commander of the Coast Survey steamer *Blake*, 1884 to 1891, engaged in investigating the Gulf Stream currents. In 1895 he was made chief-of-staff of the North Atlantic Fleet and he was chief of the Bureau of Navigation from 1908 to 1909 when he was relieved from active duty. He was one of the leading naval authorities in hydrographic and geodetic work.

PINES, ISLE OF. An island off the western end of Cuba, comprised within the province of Havana. Area, 986 square miles.

PIRSSON, LOUIS VALENTINE. American geologist, died at New Haven, Conn., December 8. He was born in New York City, Nov. 3, 1860; graduated at Sheffield Scientific School (Yale) in 1882; and studied in Germany and France. He began the teaching of geology at the Sheffield Scientific School in 1884 and held the professorship of physical geology from 1897 to the time of his death. He was an editor of the *American Journal of Science* for over 20 years and was author of a large number of scientific papers and textbooks. He was associated with the United States Geological Survey after 1904 and was a member of the important scientific bodies within his field.

PITTOCK, HENRY LEWIS. Newspaper publisher, died at Portland, Ore., January 28. He was born of American parents in London, March 1, 1835. He joined the staff of the *Oregonian* in 1853 and remained with it until his death, changing it from a weekly to a daily in 1861. He was prominent in the paper manufacturing industry in Oregon and Washington and in other important enterprises in the Northwest.

PITTSBURGH, UNIVERSITY OF. A non-sectarian educational institution, at Pittsburgh, Pa. Until 1908 it was known as the Western University of Pennsylvania, and had been founded under that name in 1819. The summer enrollment for 1919 was 603 and in the fall it was 4191. The faculty numbers 461. Productive funds in 1919 amounted to \$570,000, and the income for the year was \$700,000. The library contains approximately 35,000 volumes. Chancellor, Samuel Black McCormick, D.D., LL.D.

PIXLEY, FRANK. American dramatist and musical composer, death reported as probably December 30, at San Diego, Cal. He was born at Richfield, Ohio, Nov. 21, 1867, and he studied at the universities in the State. From 1887 to

1890 he was professor of history and English in Buchtel College and from 1892-1902 was editor of Chicago newspapers. Among his plays may be mentioned *The Carpetbagger* (1900); *Thoughts and Things* (1912); *Return of Eve* (1914); *Taming a Tartar* (1914); and *The Social Call* (1915); and he was the author of well-known musical comedies, among which may be mentioned *The Prince of Pilsen* and *The Grand Mogul*.

PLANETS. See ASTRONOMY.

PLANT BREEDING. See BOTANY.

PLANT DISEASES. See BOTANY.

PLATINUM. Reports gathered by the United States Geological Survey from refiners of platinum, gold bullion, nickel, and copper indicated that 38,831 troy ounces of refined new metals of the platinum group were recovered in 1917, of which about 7384 ounces were estimated to be of domestic origin. Statistics for 1918 are not yet available. The amount of new platinum and allied metals recovered by refiners, for the year 1917, in troy ounces, was: Platinum, 33,009; iridium, 210; iridosmine-osmiridium, 833; palladium, 4779.

Dealers and refiners reported sales in 1917 of 72,186 ounces of secondary platinum metals derived from refining scrap and sweeps. This total probably represented some duplication, as the same metal may be handled as scrap several times in a year. The secondary platinum and allied metals sold in 1917, in troy ounces, amounted to 59,007 for platinum; 9832 for iridium; 3347 palladium.

Though probably derived from the most reliable information obtainable, statistics of the world's production of platinum and allied metals are, at best, estimates. The statistics given in the table below are fairly accurate, though the figures for Russia are open to question, some estimates of the Russian production in 1917 being as high as 100,000 ounces.

ESTIMATED WORLD'S PRODUCTION OF CRUDE PLATINUM FOR TWO COMPARATIVE YEARS, IN TROY OUNCES

	1916	1917
Canada	60	80
Colombia	25,000	32,000
New South Wales and Tasmania	222	.....
Russia	63,900	50,000
United States	750	605
	89,932	82,685

A total of 56,656 troy ounces of platinum and allied metals, valued at \$5,167,908 were imported into the United States in 1918. Of this, manufactured products of platinum amounted to \$8597, while \$4,949,855 represented platinum in its various crude forms. In 1918, \$2,000,000 worth of unmanufactured platinum—representing 21,000 troy ounces was imported from Russia in Asia and a total value of \$2,631,314 represented importations from Colombia.

Exports of platinum in 1918 included 119 troy ounces of unmanufactured platinum, valued at \$13,511, and manufactured articles of that metal to the value of \$23,562.

Utensils and other apparatus in chemical industries and many kinds of electrical equipment require platinum in their manufacture. Large quantities of pure platinum are employed in the "contact process" of making sulphuric acid and in plants for the fixation of nitrogen.

With the cessation of the war it was natural that platinum which had been in such demand for government purposes, should be more available for the arts and industries in 1919 than in the previous year, although conditions in Russia, ordinarily the chief source of supply, prevented mining and exports. The government stocks were released in the early part of the year so that a low price of \$90 an ounce was reached late in March. As the government's stocks became exhausted, which was about August, the price rose to \$110 an ounce and continued to advance about \$5 an ounce a month until the end of the year when quotations were from \$150 to \$155 an ounce. In the first nine months of 1919 about 40,400 ounces of platinum were imported and this rate was practically maintained until the end of the year while in addition there was a domestic production of 7000 to 10,000 ounces. It was believed that unless new deposits were discovered the United States and Canada were not in a position to do much to relieve the world's shortage of platinum. Colombia, where the mining industry continued to flourish, had been looked upon to supply more platinum, but in 1919 the crude methods of washing the sands continued. However, important developments by large mining interests in this field were reported which doubtless would result in more efficient operation and increased production.

Another source of supply discussed was the osmiridium field of Tasmania, but it was stated that to stimulate large production higher prices would be required, and even then it was doubtful whether it could produce more than 2000 ounces a year, 697 ounces being the figure for the first six months of 1919, 1607 ounces for the year 1918, and 332 ounces for 1917.

The imports of platinum into the United States from Colombia during 1919 were in excess of 26,000 ounces and on May 8, 1919, an export duty of 5 per cent ad valorem was placed on the metal to take effect June 15, 1919, but it was not felt that this duty would have any effect on mining. Active prospecting was taking place in Spain during the year but mining had not been established on a paying basis though unquestionably there were deposits of platinum within the country. The accompanying table from *Engineering and Mining Journal* (New York) shows the platinum situation as reflected in monthly prices from 1915 to 1919.

AVERAGE PRICES OF PLATINUM, 1915-1919 (b)
(Dollars per troy ounce in New York market)

	1915	1916	1917	1918	1919
January . . .	41.10	90.05	87.83	105.92	104.85
February . . .	40.00	90.00	103.75	107.68	100.43
March	39.50	90.75	103.33	108 (nom.)	99.20
April	38.63	83.10	103.77	108 (nom.)	99.85
May	38.50	80.50	105.00	106.27	102.60
June	38.00	78.13	104.75	105.00 (a)	105.80
July	38.00	63.60	103.88	105.00 (a)	105.90
August	39.25	62.56	104.55	105.00 (a)	107.60
September . .	50.00	84.25	104.13	105.00 (a)	128.70
October	54.50	89.75	104.00	105.00 (a)	132.21
November . . .	62.63	101.25	104.52	105.00 (a)	136.74
December . . .	85.50	86.87	104.38	105.54	151.35
Year	47.13	83.40	102.82	105.95	114.61

(a) Government fixed price. (b) *Engineering and Mining Journal* quotations.

See CHEMISTRY, INDUSTRIAL.

PLAYGROUND AND RECREATION ASSOCIATION OF AMERICA. Established in

1906, this organization has been active in helping communities throughout the United States to establish year-round municipal recreation systems. During 1919 the association sent field workers into communities desiring their services to help plan the work, and to secure municipal appropriations, published a number of pamphlets and a monthly magazine, *The Playground*, answered through correspondence and personal conferences thousands of inquiries regarding various phases of community recreation, and maintained an employment department for the service of recreation officials and workers throughout the country. It also inaugurated the National Physical Education Service to help States secure adequate compulsory physical education laws, and to work for federal physical education laws. Officers during 1919 were as follows: President, Joseph Lee; treasurer, Gustavus T. Kirby; secretary, H. S. Braucher. Headquarters are at 1 Madison Ave., New York.

PLAYGROUND ASSOCIATION OF AMERICA. See SOCIAL HYGIENE.

PLAZA, VICTORINO DE LA. Former President of Argentina, died at Buenos Aires on October 1. In his political career he rose to the position of Minister of Foreign Affairs, and was holding that office when the fourth Pan-American Conference was held at Buenos Aires in 1910. He opened the proceedings of the Conference, strongly supporting the Monroe Doctrine in his address to the delegates. Subsequently, having been chosen Vice-President, he succeeded to the presidency on the death of President Pena in 1914, holding office until the end of the term in 1916. In the next election, after a sharp contest, he was defeated by the Radical candidate, Dr. Hipolito Irigoyen. During his administration Dr. de la Plaza narrowly escaped assassination by an anarchist when he was reviewing the troops from the balcony of a government building.

PNEUMONIA. See BUBONIC PLAGUE; INFLUENZA.

PODOLIA. Formerly a government of the Russian Empire, but after the revolution comprised within the territory of the Ukrainian Republic. It is situated to the east of Galicia and between Volhynia and Bessarabia. Area, 16,224 square miles, population estimated Jan. 1, 1915, 4,127,600. Capital, Kamenets Podolsk, with a population before the war estimated at 52,000, of whom one-half were Jews.

POETRY. See LITERATURE, ENGLISH AND AMERICAN; also articles on French, German, Spanish, and Scandinavian literatures.

POLAND. A European state reconstituted after the War of the Nations and comprising territory formerly divided among the great Powers of Austria-Hungary, Russia, and Prussia as a result of the wars in the latter part of the eighteenth century; boundaries still undetermined at the close of 1919. The area according to a Polish estimate in 1919 was 135,367 square miles and the population 36,234,727. Of what had been Russian Poland the area was 43,946 square miles, with a population estimated, Jan. 1, 1915, at 12,247,600, of whom, according to the Russian census of 1897, 71.5 per cent was Polish. Roman Catholicism is the religion of about three-fourths. The capital is Warsaw with a population before the war of 909,401. A more recent estimate places it at 764,054.

PRODUCTION AND INDUSTRIES. The following information in regard to production and economic conditions is derived from the United States Bureau of Foreign and Domestic Commerce, Dec. 15, 1919: Whatever may be the difficulties which have arisen out of the war and are incidental to the new system of an independent Poland, there can be no doubt about the vast resources of the country. In the first place the forest lands occupy a total area of 31,200 square miles. Secondly, agriculture gives employment to the majority of the Polish population, 50 per cent of the total area of Poland being under cultivation. In 1914 the output of the main agricultural products was as follows: Wheat, 1,640,000 tons; rye, 4,100,000 tons; barley, 1,500,000 tons; oats, 2,900,000 tons; beet root, 4,585,000 tons. In the production of sugar beets Poland occupied the third place in the world's output and in the production of potatoes the second place. As a by-product from the potato surplus Poland has developed the starch industry, half the production of which was exported to Great Britain and Scandinavia. As regards live stock prior to the war, according to the official Russian, German, and Austrian statistics, United Poland possessed the following numbers: Horses, 7,000,000; cattle, 14,000,000; goats and sheep, 7,000,000. Poland possessed 2,000,000 more pigs than France. In 1914, 1,000,000 pigs valued at \$21,413,000, and cattle valued at \$4,088,000, were exported from Galicia alone to Austria.

Mineral wealth is next in importance. The opening up of the rich oil wells at Boryslaw (Eastern Galicia) in 1898 was another milestone in the evolution of the oil industry in Galicia. Gradually the oil lands at Boryslaw were covered with a forest of drilling derricks and a multitude of new companies, and Polish and foreign petroleum ventures came into existence. The production of crude oil soon exceeded the requirements of the whole of Austria-Hungary. New refineries were erected and Galician petroleum, gasoline, paraffin, and lubricating oils invaded the European markets. Rock salt is found in the district of Wieliczka, near Krakow, and in the district and round the city itself of Hohensalza (Inowroclaw). In 1907 the mine of Wieliczka produced 110,260 tons of salt, i.e. 60 per cent of the total output of Galicia. Poland also possesses at Kalusz mines of potassium salt, which are the only ones known in the world, with the exception of those in Germany. Zinc and lead were exported in large quantities to Russia, Hungary, Germany, the United Kingdom, and the United States. The production in 1913 amounted to 2,455,000 tons of zinc ore; 86,775 tons of zinc powder; 415,300 tons of lead, and 29,000 tons of white lead.

As regards the state of Polish industries before the war it is necessary to mention them in their order of importance. The textile industry occupied by far the most important position in late Russian Poland; compared with other industries its percentage was 50 both in value of output and in the number of workmen employed. The chief centres of manufacture are Lodz, Czenstochowa, and Sosnowice, with an aggregate of 1,925,405 spindles and 46,761 looms. This industry was reviving in 1919 owing to large consignments of raw cotton and wool received from the United States and the United Kingdom. The Polish linen industry is concentrated in the

Zyrardow factories near Warsaw, turning out all kinds of linen goods, including underclothing, stockings, jersey goods, etc. Besides the linen spinning and weaving, there are cotton-spinning mills, with about 35,000 spindles, and wool-spinning mills, with 800 looms. The value of the total output in 1913-14 was about \$10,560,000. In late Russian Poland the production in the metal industry was as follows: Cast iron, 418,360 metric tons; black steel, 629,860 metric tons; rails, sheet iron, etc., 466,715 metric tons; and wire-drawn pipes, 84,450 metric tons. The output of zinc represented 80 per cent of that of the whole of Russia. Other branches of the metal industry consisted of factories producing engines, boilers, materials for building bridges, foundries, wire manufactories, tool-making factories, etc. There were 17,200 men engaged in the wood industry in the Warsaw and Czenstochowa districts in 880 works; their annual output was valued at \$11,728,000. High-class furniture was produced. Before the war 53 sugar mills were operating in late Russian Poland, working exclusively sugar beet, amounting in 1913 to 13,280,000 tons. The alcohol, like the sugar, industry is under government control. In 1913, 45,000,000 gallons were obtained in distilleries and 10,000,000 gallons in breweries. Before the war alcohol was shipped principally to Russia, Lithuania, Finland, and Great Britain. The clothing industry occupied an important part of the Polish industrial production, its principal branches being boot making, ready-made clothing, hats, fancy goods, etc. The annual output in 1910 was estimated at \$24,000,000. The production of starch was carried on in 53 starch factories in 1913, and its output was to a great extent exported. The chemical industry has been very little developed. This was due chiefly to the prohibitive duty on salt and other imported products, such as coal tar and lead, which are indispensable for the chemical industry, and also to the high railway tariff for the transport of Russian salt. For this reason Russian Poland was obliged to import large quantities of chemicals from abroad and from Russia. In reunited Poland the development of the chemical industry will be simplified, because many of the essential raw materials—the absence of which in Russian Poland greatly hampered the growth of the chemical industry—such as salt, potassium salts, coke, coal tar, and many by-products of the petroleum industry, are abundant in other parts of reunited Poland.

ECONOMIC CONDITIONS. Unemployment continued to be one of the most difficult problems in the internal affairs of Poland, and the danger arising from it was seriously aggravated by the action of certain political parties, which sought to take advantage of the circumstances for their own purposes. The shortage of coal caused serious interruption in various industries; and even after the harvest there was a great scarcity of food and a general lack of the necessities of life. With regard to unemployment it is of interest to note that the government entered into an agreement with the French government to send 100,000 workers to take part in the work of reconstruction in the liberated regions. The eight-hour day, or week of 48 hours, was legally in force throughout Poland, and a bill was prepared with the object of establishing a general legal working day. Welfare committees for disabled soldiers were instituted by the War Minis-

try, for the purpose of looking after the welfare of the disabled, finding them employment, and generally rendering them useful members of society.

Poland and its annexed territories were said to require 13,000,000 tons of coal yearly, whereas the output, including that part of the Teschen district which was under Polish administration, was at the rate of only 5,500,000 tons per annum. Efforts were made by the government to obtain supplies from Upper Silesia (600,000 tons per month), but the output there in the autumn had reached only 40 per cent of its normal figure. In the Teschen district the production was estimated at 75 per cent of the last pre-war month, but political and transport difficulties hindered free supplies from either quarter. According to the Polish Minister of Industry and Commerce the Government of Poland required in the closing months of 1919 more than 1,000,000 tons of coal a month, which was twice as much as the production. It was at that time doing all in its power to increase the production and was meeting with success, owing chiefly to the co-operation of the workmen. Toward the close of the year it was reported that the mines of Dombrova coal basin were producing 75 per cent of their output before the war. See CHILD LABOR.

RAILWAYS. The railways are administered by the government. The total mileage was given at 7110 in October, 1919, and of these 5606 were operated under the civil authorities and 1504 under the War Department.

HISTORY

COALITION GOVERNMENT. As noted in the preceding YEAR BOOK the question was pending at the close of 1918 whether the Polish government would remain in the hands of the radical element under Pilsudski or pass over to Paderewski who represented the conservative groups presumably favored by the ruling classes in the Allied countries. Attempts to dispose of the Pilsudski element were unsuccessful and a compromise resulted in the formation of a coalition cabinet representing both the Pilsudski and the Paderewski parties. In this new government M. Paderewski became Premier and Foreign Minister. Other members were as follows: M. Wojciechowski, Minister of the Interior; M. Honcia, Minister of Commerce; M. Englich, Minister of Finance; M. Janiszewski, Minister of Public Health; M. Eberhardt, Minister of Communications; M. Kinde, Minister of Posts and Telegraphs; M. Janicki, Minister of Agriculture; M. Przesmycki, Minister of Arts; M. Iwonowski, Minister of Labor; M. Minkiewicz, Minister of Food; M. Supinski, Minister of Justice; and M. Pruchnik, Minister of Public Works. Under this new ministry of the so-called Provisional Government of Poland a Constituent Assembly was elected by government decree and met at Warsaw, February 9. It was constituted as follows: National Democrats, 91; Polish Peasants, 51; Peasants' Union, 19; Socialists, 14; Workmen's Union, 7; Jewish party, 8; United Polish Peasants, 6; German Colonists, 2.

NATIONALIST POLICY. The chief feature of the Paderewski government was its nationalism and determination to carry the claims to territory as far as possible. This programme for an en-

larged Poland brought it into conflict with the Czechoslovaks who claimed Austrian Silesia with its rich mineral resources, but a temporary settlement of the dispute was reached as a result of the notice by the Peace Conference to both parties that Allied troops would occupy the disputed zone until the question was settled. The Poles also came into conflict in Eastern Galicia with the Ukrainians. The continued Polish successes forced the Ukrainians on May 19th to ask for an armistice. The Ukrainian National Committee said that 75 per cent of Galicia was Ukrainian and in a memorial to President Wilson on July 9th protested against the ratification of an arrangement that would give Eastern Galicia to the Poles. As to the rights of the question the reports were conflicting, the Polish propaganda advancing strong arguments on the other side. Again, the Poles were in conflict with the Bolsheviks on the one hand and with the Lithuanians on the other. Polish armies had seized a part of the territory of the Lithuanians who made vigorous protest against this occupation as violating their national rights. The Poles had trouble also with the Germans on the western frontier. Poland was unsatisfied with the treaty of Versailles and during the last half of the year the press was flooded with Polish propaganda complaining of the cruel injustice with which Poland was treated. Some of the specific objections were: The requirement that Poland should protect minorities against discrimination; that she should assume payment of a portion of the Russian debt that was to be attributed to her by the Inter-Allied Commission; and that she was to support international postal, railway, telegraphic, and other conventions that arose from the status of nationality. In regard to Lithuania the Polish Assembly on May 26th declared that there would be no annexation of Lithuania. Another unfortunate aspect of Polish affairs was the widespread belief that the Poles had been guilty of the worst atrocities in regard to the Jews. Reports of pogroms were frequent throughout the year. The Allies sent a mission composed of Mr. Henry Morgenthau, Gen. Edgar Jadwin, and Mr. Homer Johnson, who later made their report. Meanwhile the American Minister at Warsaw, Mr. Hugh Gibson, officially reported that the accounts of pogroms had been very much exaggerated. This whole matter was a subject of endless discussion throughout the year. Repeated statements appeared from the Poles arguing their innocence. The Prime Minister, Paderewski, in the summer issued a statement to the effect that practically no pogroms had been committed during his term of office. In December Mr. Morgenthau indicated that not as many murders had been committed in Poland as the Jews had claimed, but that the number of those deported was very large and a great number of dead bodies that were seen and that were shipped away in cars gave the impression that those who had been deported had been killed; and that although the reports of annual massacres were exaggerated the economic boycott of the Jews had had terrible results. He said that while he was among the Turks he saw how they sent the Armenians out into the deserts with released criminals who killed them on the way. In Poland, he said, the methods were more refined. They tried to eliminate the Jews by not doing business with them. They discharged Jewish

employees from the railways and from government, refused commissions in the army to any Jews; excluded Jews from the staffs of their universities, etc. He appealed for a fund of \$150,000,000 to finance the industries of Poland on behalf of the Jews.

UPPER SILESIA. The region whose political status was to be determined by plebiscite as between the claims of Prussia and those of the new state of Poland lies to the north of Czechoslovakia, the south of Poland, and the east of Prussia. According to the German census of 1910, which had certainly not overestimated the number of Poles, the races were divided as follows: Poles, 1,258,186; Germans, 884,045; but on the basis of the school statistics, the figures were still more favorable to the Poles, who numbered 1,548,500, while the Germans numbered only 558,000. It was largely on the basis of population and the alleged nationalist spirit of the Poles that the annexation to Poland was favored. The respective claims to the region were sharpened by economic interest, for it was one of the richest fields for coal and other minerals in that part of Europe. The coal beds extend beyond the limits of Upper Silesia and are connected with the coal basins of the Teschen region of Silesia, and of Galicia and Poland. The Upper Silesian coal basin in the district of Oppeln was said to contain an enormous quantity of workable coal within an area of 3025 square kilometers, though the production according to recent figures available had attained in 1911 only about 37,000,000 tons, and in 1914 about 44,000,000. It was especially adapted to the making of coke. In this same region zinc and lead have reached a total yearly value of from 45,000,000 to 50,000,000 marks. The control of the industry, with the exception of the mines and blast furnaces which belonged to the Prussian government, had been in the hands of certain noble Prussian families, but the manual labor was mainly Polish. Wages were low as compared to German labor. Workmen engaged in mineral industries were largely centred in the neighborhood of Tarnowitz, Beuthen, Hindenburg, Gleiwitz, Koenigshütte, extending even beyond Kattowitz and were almost exclusively Poles. On the east there is no natural frontier, the country forming part of the great Polish plain. The arguments for annexation to Poland were both racial and economic. It was said that the Polish workmen were strongly nationalist in their views and that most of them hardly spoke the German language; that socially and economically they formed their own groups apart from all German associations; that Poland was dependent upon neighboring countries for machinery and all modern appliances—in short for her industrial progress—and that of all Polish territory only Upper Silesia and the Teschen region had the necessary coal. At the Chamber of Commerce of Oppeln, Sept. 24, 1916, a communication from German industrial managers declared that the future of Upper Silesia depended upon the relations that should be established with Russian Poland, and that therefore the country should be united to Germany in the economic sense or at least the eastern part of it which borders on Silesia, and in June, 1917, the German imperialists had declared also at this same Chamber of Commerce that it was their duty to prevent the development of a movement for making Poland independent of Germany,

Austria-Hungary, and Russia. These were the views of the Germans in control of the industry and having under their orders some 400,000 Polish workmen. Military reasons appeared to underlie these demands. In the first of these communications the importance of the foundries of Upper Silesia for the making of arms and munitions was emphasized. Hence the champions of Polish annexation argued that it would be a guarantee against military aggression on the part of Germany in the future, for unless she had the mineral resources of this region at her disposal, she would be unable to wage a long war.

THE DANZIG QUESTION. The Polish side of this difficulty (see *DANZIG AND WAR OF THE NATIONS*) was set forth by a member of the government in an interview in Paris and may be briefly summarized here. Poland must have means of existence and one of these means is the possession of a seacoast. The Polish element extends even so far as the sea to the west of the mouth of the Vistula, but this region would not suffice for maritime development. Poland requires the mouth of the Vistula; it must have Danzig. By way of Danzig she would send her products to western Europe the most cheaply, that is to say, by water, and would receive from Europe in the same manner all that down to the present time she has been receiving directly from Germany or by way of Germany. The Vistula united by canal to the Oder and Niemen, and joined to the Dnieper by the Pripet, would continue the way straight to the heart of Poland. Now that the old lines dividing Poland were effaced, the river would recover its former importance. Danzig is the key to it, and it must be the great port of Poland. The Poles did not claim only the present province of West Prussia, but also the three districts of Butow, Lauenburg, and Slupsk in Pomerania, inhabited in large part by a Polish population which had never been Germanized; and toward the east they claimed the territory which belonged to them before 1772, where the district of Allenstein had a majority of Poles. The Poles declared that there was no basis for the pretense that Danzig was German, for the figures came from German sources, and naturally underestimated the number of Poles. Moreover, in the surrounding regions to the northwest as well as to the north, extending up to the very gates of the city, the population was Polish. The fine monuments of the city for the most part dated from the period of Polish rule and an entire quarter built in renaissance style was from that period. German merchants settled in the city under the Polish régime, spoke Polish. Before the war Danzig was the commercial outlet for West Prussia or a territory of 26,000 square kilometers, with a population of about 700,000. In future years commerce would spread over an area not less than 400,000 square kilometers, with a population greater than that of Italy. Moreover, Danzig would no doubt treble its population within the next 20 years and the majority of the people would be Polish. In the German population of Danzig the Poles declared that it was only the Prussian functionaries who had protested definitely against incorporation in Poland, and that the merchants did not altogether support these protests. The Poles declared that in the future the port of Danzig when detached from Prussia and enriched by the capital that would come in from the Allies would

gether with Latin America; C. W. Wood, *The Great Change*.

TRANSPORTATION AND TRADE. J. B. Daish, *The Atlantic Port Differentials*; R. S. MacElwee, *Ports and Terminal Facilities*; F. S. C. Bradlee, *Boston and Lowell Railroad*; H. S. Haines, *Efficient Railway Operation*; A. S. Richey, *Traffic Operation*; S. Thompson, *Railway Statistics of the U. S. A. for the Year Ending Dec. 31 1917*; F. J. P. Benn, *Trade Parliaments and Their Work*; W. S. Culbertson, *Commercial Policy in Wartime and After*; G. G. Huebner, *Agricultural Commerce*; W. H. Koebel, *South America*; E. Pulsford, *Commerce and the Empire*; E. Saunders, *A Self-Supporting Empire*; G. C. Vedder, *American Methods in Foreign Trade*; W. C. Webster, *A General History of Commerce*; R. W. Kelley, *The Shipbuilding Industry*; M. L. Kissel, *Yarn and Cloth Making*; B. Benedict, *Express Companies in the United States*; E. B. Leigh, *Railway Buying and Industrial Readjustment*; Morawetz, *Solution of the Railway Problem*; M. G. Roberts, *Federal Liabilities of Carriers*; P. M. Warburg, *A Suggestion of the Main Principles on which the Solution of the Railway Problem Should be Sought*; W. H. Beable, *Commercial Russia*; A. W. Douglas, *Merchandising*; R. C. Rawley, *The Silk Industry and Trade*; N. C. Brown, *Forest Products*; A. F. Calvert, *Salt and the Salt Industry*; W. J. Abbot, *The Story of our Merchant Marine*; J. H. Collins, *Motor Transportation for Rural Districts*; A. B. Cummins, *The Railroad Problem*; E. R. Johnson, *Ocean Rates and Terminal Charges*; R. D. Paine, *The Old Merchant Marine*; L. E. Pierson, *What is Wrong with the Electric Railways?*; R. H. Bennett, *The Principles of Trade Coöperation*; J. T. M. Moore, *American Business in World Markets*.

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Trade; C. A. Meyer, *Mercantile Credits and Collections*; E. E. Purinton, *Personal Efficiency in Business*; W. E. Richards, *Trade-marks*; T. Russell, *Commercial Advertising*; P. M. Warburg, *Investment of American Capital Abroad*; P. M. Warburg, *Some Problems of the Investment Banker*; J. F. Whiteford, *Factory Management Wastes*.

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POLITICAL SCIENCE, ACADEMY OF. A society organized in New York, in 1880, for the promotion of social and political studies. The semi-annual meeting was held at Columbia University, New York City on June 5, 1919, the subject under discussion being "The League of Nations Covenant." About 1000 persons attended this meeting. An extensive volume on *The League of Nations Covenant* was published, composed of addresses by many statesmen. About 5000 copies of this volume have already been distributed. Mr. George W. Pepper was the principal speaker at the meeting. The 35th annual National Con-

vention was held in New York on Nov. 21, 1919, the principal speech being given by Mr. Howard Elliot, president of the Northern Pacific R. R. on "Railroad Legislation." About a thousand persons attended the convention. The Academy publishes the *Political Science Quarterly*, the *Annual Record of Political Events*, and the *Proceedings* of each meeting. During the year 300 new members were admitted to the Academy, making a total of about 3700. It was expected that the membership would reach the four thousand mark early in 1920. The officers in 1919 were: Board of Trustees, president, Samuel M. Lindsay; vice-presidents, Albert Shaw, Thomas W. Lamont; secretary, Roswell C. McCrea; treasurer, George G. Plimpton; and editor of *Political Science Quarterly*, Henry R. Massey. Headquarters at Kent Hall, Columbia Univ., New York.

POLITIS, M. Greek representative at the Peace Conference. He was the Foreign Minister of Greece. Like Venizelos with whom he was a close ally, he aided in the formation of the provisional government at Salonika. He shared the views of Venizelos as to the liberation of the Greeks from foreign rule, and their union to Greece. On the downfall of Constantine, he returned with Venizelos to Athens.

POLK, RUDOLF. See **MUSIC**, *Artists, Instrumentalists*.

POLLAK, GUSTAV. Editor and author, died at Cambridge, Mass., Nov. 1. He had been known for many years as a writer and editor with an encyclopedic range of knowledge. He was born in Vienna, Austria, May 4, 1849, and educated in Vienna, but came to the United States as a young man, and after 1874 was a frequent contributor to the *New York Nation*, and after 1881 to the *New York Evening Post*, chiefly on foreign politics and literary subjects. He was associated in one way or another with the most important encyclopedic enterprises in the United States, showing a very unusual combination of minute with comprehensive knowledge. Among the works with which he was editorially associated may be mentioned the *New International Encyclopædia* and *Nelson's Encyclopædia*. He was lecturer on Austrian dramatists at Johns Hopkins, 1905. He also interested himself in politics and was several times delegate to the Democratic State conventions during his residence at Summit, N. J., 1895-1901, and was candidate of the Gold Democrats for State senator in 1896. He was one of the founders of the German American Reform Union during the presidential campaign of 1892. Among his writings may be mentioned the following: *The Century Book for Mothers* (with Dr. L. M. Yale), (1901); *Franz Grillparzer and the Austrian Drama*, (1907); *The Hygiene of the Soul*, (1910); *Michael Heilprin and His Sons*, (1913); *International Perspective in Literary Criticism*, (1914); *Fifty Years of American Idealism*, (1915); *The House of Hohenzollern and the Hapsburg Monarchy*, (1917).

POLO. No international polo matches were held during 1919, the American players feeling that they should not challenge the Britons for the trophy now held by the Hurlingham Club of England until pre-war conditions once more obtain. There was a dearth of ponies abroad as the result of the war and the exponents of the sport in Great Britain had had no opportunity to take the necessary practice. It was

generally understood among those interested in the sport in the United States that a challenge would be sent to the Hurlingham Club in 1920 although the matches themselves might not be played until the year following.

The War Department of the United States in an endeavor to increase interest in polo made an offer to the colleges of mounts and equipment providing they would take up the game in 1920. Yale, Cornell, Princeton and Harvard are expected to accept the offer, with the possibility that other colleges will fall into line later.

As for the season of 1919 several tournaments were held in California, on Long Island and at Philadelphia, as preliminary tests for the title events which were staged later in the year. The national senior championship took place under the auspices of the Philadelphia Country Club and was won by the Rockaway four after the home team had been forced to default in the final match because of the inability of some of their players to compete.

The open championship was contested at the same place, the Rockaway, Cooperstown and Meadowbrook clubs being the competitors. After an exciting struggle the title honors finally went to Meadowbrook. In the opening clash Cooperstown triumphed over the Rockaway players by a score of 6 to 3½.

Cooperstown then faced Meadowbrook in the title match and went down to defeat by the close tally of 5 goals to 4. It was a real battle from start to finish, first one team and then the other gaining the lead. In the final chukker Meadowbrook battled its way into the van and by magnificent work on the defense managed to hold its advantage until the end. The winning four were: F. H. Prince, Jr., J. W. Webb, F. S. Von Stade and Devereux Milburn.

PONTOON BRIDGES. See **BRIDGES**.

POOL. See **BILLIARDS**.

PORK PRODUCTION. See **LIVE STOCK**.

PORTO RICO. AREA AND POPULATION. The area of the island is placed at 3435 square miles. In 1898 the population was 953,243; in 1918-19 it was 1,263,474.

EDUCATION. The total enrollment for 1919 was 160,794 an increase of 18,000 over the previous year. The total number of children of school age, that is to say, between the ages of five and 18 years was estimated at 441,465. The per cent of the school population actually enrolled was 36.4 per cent. The number of pupils enrolled in the rural schools was 97,995 and in the elementary city schools 54,442. It was pointed out that while only a beginning had been made in the great task of educating the people of Porto Rico much had already been done. Popular interest had been drawn to education and a foundation was laid for the building up of an adequate school system.

AGRICULTURE. The following table shows the acreage and value of the principal crops in 1918.

	Area Acres	1918 Quantity Tons	Value
Sugar cane	256,431	453,796	\$55,726,025
Coffee	147,612	18,809	5,505,316
Tobacco	23,981	8,598	8,982,130
Pineapples	3,286	.....	695,325
Citric fruits	5,843	.....	1,351,581
Coconuts	9,387	.....	572,600
Total .....	.....	.....	\$72,832,977

lines and the Portuguese were forced to turn to that market. Many new agencies to handle American goods were established, and the business relations between the two Republics were broadened in various ways. One noteworthy feature of this trade was that a much larger proportion than ever before was carried in American ships. Freight rates were much higher between the United States and Portugal than between Great Britain and Portugal, but these may be equalized with beneficial results to the growing American trade. Value of exports from Lisbon to the United States in 1918, \$3,477,172; in 1917, \$5,901,445.

FINANCE. The following table showing the budget estimates for 1918-19 is taken from the *Statesman's Year Book* for 1919:

Revenue	Escudos
Direct taxes	13,610,590
Registration and stamps	15,035,000
Indirect taxes	24,860,000
Port dues	55,110
National property and income on investments	19,671,483
Revenue earning, administration, etc.	5,085,398
Total ordinary	78,317,631
Extraordinary	3,671,900
Grand total	81,980,531
Expenditure	Escudos
Public debt	31,594,331
Presidency, Congress	2,597,542
Ministry of Finance	5,458,257
Ministry of Interior	6,743,397
Ministry of Justice	1,556,378
Ministry of War	13,658,515
Ministry of Marine	5,200,436
Ministry of Colonies	501,269
Ministry of Foreign Affairs	659,326
Ministry of Instructions	3,506,850
Ministry of Labor	182,370
Ministry of Commerce	5,461,069
Ministry of Agriculture	1,685,338
Ministry of Food	812,941
Total ordinary	79,618,019
Extraordinary	5,792,583
Grand total	85,410,602

The question of the colonies was much discussed in 1919 with a view to the necessity of making them more profitable. The income and expenditures on the account of the colonies for the year 1917 and 1918 were as follows:

Colonies	Income Escudos	Expenditures Escudos	Surplus (+) or deficit (-) Escudos
Cape Verde Islands	729,000	774,000	- 45,000
Guinea	666,000	666,000	.....
San Thome and Principe	1,368,000	1,282,000	+ 86,000
Angola	3,483,000	16,416,000	-12,933,000
Mozambique	9,441,000	8,041,000	+ 1,400,000
India	1,575,000	2,010,000	- 435,000
Macao	1,917,000	1,737,000	+ 180,000
Timor	481,000	481,000	.....

GOVERNMENT. Down to 1910 Portugal was a monarchy. In that year after a brief revolution a republican form of government was set up and on Aug. 20, 1911, a new constitution was adopted. This vests the executive power in a president elected by the legislature for four years and the legislative power in two chambers of which the upper is elected by the municipal councils and the lower by direct suffrage. Presi-

dent in 1919, Joao do Canto e Castro Silva Antunes; Ministry as constituted Mar. 30, 1919, was as follows: Premier, Domingos Pereira; Minister of War and Minister of the Interior (Ad Interim), Colonel Antonio Maria Baptista; Minister for Foreign Affairs, Xavier Silva; Minister of Labor, Dias da Silva; Minister of Justice, Senhor Granjo; Minister of Finance, Ramada Curto; Minister of Marine, Macedo Pinto; Minister of Commerce, Julio Martins; Minister for the Colonies, Jorge Nunes; Minister of Agriculture, Joao Soares; Minister of Food and Transports, Brito Guimaraes; Minister of Education, Leonardo Coimbra.

HISTORY. After the murder of President Paes Dec. 14, 1918, described in the preceding YEAR BOOK Admiral Canto y Castro succeeded as president and the Ministry was reorganized under the premiership of T. Barbosa. In January a royalist revolution broke out under the celebrated monarchist Henrique de Paiva Couceiro, who had previously made several attempts to restore monarchical government, as recorded in preceding YEAR BOOKS. At the beginning of February it was learned that the monarchist movement had failed. They had made a great mistake in enforcing the decision by arms at this time. They began immediately after the assassination of Paes to try and gain the upper hand in the government, as against their rivals, the Nationalists or new Republicans. The old Republican parties united against them. Among the monarchists themselves there were different shades of opinion, and they could not present a united front against their enemies nor did they realize that republican feeling had developed in the last few years. It has been said that whoever owns capital owns the country in Portugal. As soon as the monarchists rose in arms and certain of the military began to desert, the people rallied to the government. The places of deserters were promptly filled and the people in Lisbon took arms themselves at the call of the government. Within a few hours some 3000 citizens of all conditions had responded and by the afternoon of Wednesday, January 22d, the number of these volunteers had risen to 15,000. The marines had remained faithful. Thus the situation appears to have been saved by the people of Lisbon and by the marines. On February 15th it was officially announced from Lisbon that the royalist leader, Colonel Paiva Couceiro, had been taken prisoner. A new ministry was formed, June 28th, under Señor Cardoso. Portugal was represented at the Peace Conference by Egar Moniz, a friend of the late President Paes.

See LABOR LEGISLATION.

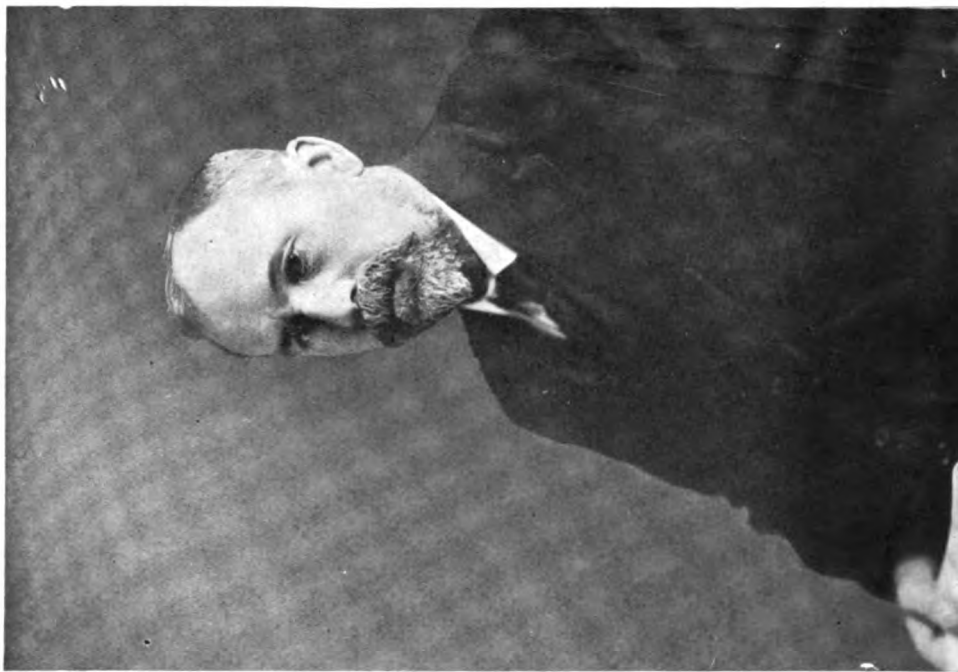
PORTUGUESE EAST AFRICA. A Portuguese colony on the east coast of Africa, with a total area of 428,132 square miles, comprising three parts: (1) the province of Mozambique (about 295,000 square miles); (2) the territory under the Mozambique Company (59,840 square miles), and (3) the district under the Nyassa Company (73,292 square miles). The total population is estimated at about 3,000,000 natives, 105,000 whites and 1100 Asiatics and half-breeds. The capital and chief port is Lourenco Marques with a population in 1912 of 13,154. Other ports are Mozambique, Ibo, Beira, Inhambane, and Chinde. The chief products are sugar, coconuts, rubber, bees-wax and minerals. Imports in 1916, 10,628,392 escudos; exports, 3,



SIR OLIVER LODGE

LEADERS IN PSYCHICAL RESEARCH IN ENGLAND AND AMERICA

JAMES H. HYSLOP



604,745; reexports, 7,107,647; transit, 15,935,830.

In the Beira district of Portuguese East Africa the railway from Beira to Macequece and Umtali, known as the Beira and Mashonaland Railway, was the only line in operation in 1919; being under the direction of British employees. Surveys had been begun, however, for a line about 200 miles in length to connect Beira with Chindio on the Central African Railways, the junction point being about 20 miles from Beira on the Beira and Mashonaland Railway. The gauge was to be 3 ft. 6 inches, the customary gauge for most of the South African railways. The only serious feature in the construction of this line would be a bridge over the Zambezi River, and it was thought that it could be put through in two years. The new line would afford an important outlet for the sugar factories in the Sena district as once loaded at that point it could be shipped direct to destination without transshipment. During 1919 sanction of the Portuguese official authorities was obtained for certain modifications of the original concession for the construction of the Beira-Zambesi railway. This line, which was to be about 170 miles in length, was designed as a portion of a great trunk route, which would be an alternative means of travel to the Congo route, between Cape Town and Cairo. To complete this route it will be necessary to extend the Shire Highlands railway to the southern end of Lake Nyasa, the construction of a connecting line between Lakes Nyasa and Tanganyika and the building of the proposed Tabora-Mwanza branch of the Central Railway. All these lines it was hoped to construct between 1920 and 1930. The number of changes from train to boat and vice versa would be 10 in both cases between Cape Town and Cairo. The new lines will be about 170 miles long and will be owned and operated by a separate company which was to be known as the Trans-Zambezia Railway Company. The line was to be constructed by an English company, whose debentures would be guaranteed by the British Nyasaland Protectorate. It was hoped that the line could be built in two years. The link to be known as the Trans-Zambesi Railway, would connect the Nyasaland Railway with the South African and Rhodesian systems, so that it will be possible to travel by train from Cape Town via Salisbury and Beira to Blantyre.

PORTUGUESE GUINEA. A Portuguese colony on the western coast of Africa, including the adjacent archipelago of Bijagoz along with the island of Bolama, on which is situated the capital, Bolama. Area, 13,940 square miles; estimated population, 289,000. Imports, 1917, 2,058,161 escudos; exports, 2,881,181.

POSTAL SAVINGS BANKS. See SAVINGS BANKS.

POST OFFICE. See UNITED STATES.

POTASH. In few American industries in 1919 were conditions more disturbed than in those having to do with the importation or production of potash salts, so essential in agriculture. It will be recalled that normally large supplies are produced in Alsace, and Germany, and with these cut off during the war, efforts were made to develop in the United States production from various natural sources. There was of course during the war a continued demand for potash salts which stimulated production, but with the ending of hostilities it was

believed that there would be a renewal of imports from Alsace and domestic stocks accumulated to the financial concern and in some cases embarrassment of their producers, as the 1918 product had been developed at high cost. The stocks held on Jan. 1, 1919 were estimated at about 100,000 tons gross weight of potash salts or the equivalent of about 25,000 tons of pure potash. These stocks were mainly those of Nebraska producers and were slow of disposal until it was announced that the imports of Alsatian potash would be long in coming and of small quantity. As a result in Nebraska all the plants closed and some operators in California and Utah ceased production in April, as the demand was meagre and unsatisfactory. In the autumn conditions became somewhat clarified as it was realized that only small quantities of potash had come from Germany and Alsace, and that especially with the prevailing coal shortage little was to be expected from the former country. Furthermore, of the 15,000 to 20,000 tons on hand in Alsace in July, it was reported that most of this was required for domestic use. An estimate of 50,000 tons of pure potash that might be available from Alsace up to the middle of 1920 was made, and also a similar quantity from Germany might be expected under favorable conditions, but such total imports to America would not meet the needs as they existed before the war.

The Congress of the United States sought to relieve conditions in the domestic industry and control imports but in spite of bills proposed and discussed, no legislation was enacted. An executive order provided that "On and after Aug. 7, 1919, potash may be imported from every source except Hungary and those parts of Russia under Bolshevik control," irrespective of its origin. This did not lead to any extensive imports in view of industrial and transportation difficulties in Germany and uncertainty as to a future national policy towards the industry. At the end of the year it was thought that arrangement might be made to exchange American coal for German potash but conditions at both ends were not altogether favorable for such traffic.

Under such conditions and in view of the establishment of an American industry made possible by shortage of supply and high prices it was not strange that the future needs and possibilities in regards should be vigorously discussed during the year. Going back to pre-war days it was stated that during 1913, consumption of potash in the United States amounted to 270,000 tons, pure potash, at an average price per unit of 75c. During 1918, there was consumed about 52,000 tons, at an average price of \$4.50 to \$5 per unit. The estimated consumption in the United States was placed, say at a price of \$2 to \$2.50 per unit, at approximately 150,000 tons. To meet the above requirements, however, the newly established industry even under very favorable conditions would not afford a production in excess of 100,000 to 125,000 tons per annum. Accordingly even on a lower basis of requirements than prevailed in the United States prior to the war importation of potash would be needed, but if a governmental policy was established which assured a market for domestic potash at approximately \$2 per unit for a few years, there would result in all probability an industry which could ultimately stand on its own feet in competition with foreign salts.

In 1919 it was stated that the American potash industry involved invested capital variously estimated at from \$20,000,000 to \$30,000,000. Part of this represented research and part had been spent on the construction of plants and equipment. As a result of this total production of available potash which could be expected during two years, with an assured market at \$2. per unit, was estimated by A. E. Wells, of the Bureau of Mines, at 126,000 tons, classified as follows:

Source	Estimated capacity
Natural brines	
Nebraska	55,000
California	50,000
Organic sources	
Waste molasses, beet sugar, molasses, wood ashes, kelp	6,000
Cement industry	8,000
Blast-furnace industry	1,000
Silicate rocks and alunite	6,000
Total	126,000

Many of the American byproduct factories, including the California plants, doubtless would be in a position to compete with foreign salts at a price of \$1.25 to \$1.50 per unit within a few years, unless costs should increase abnormally. At the end of 1919 foreign potash was quoted at from \$1.50 to \$1.70 a unit with resales as high as \$2.75 a unit and on this basis the American industry could hold its own. On the other hand, if there were a return to anything approaching pre-war prices, or even 50 per cent increases over these, the American industry could not hope to produce more than 15,000 to 20,000 tons, or it might become totally extinct.

POTASSIUM. See CHEMISTRY, INDUSTRIAL.

POTATOES. Data regarding the world's potato production in 1919 were extremely meagre. Provisional estimates of the yields of only six important potato producing countries including the United States, were published by the International Institute of Agriculture, Rome. The aggregate production of these countries as estimated was about 706,646,000 bushels or less than one-seventh of the world's average production for the years 1905 to 1915 inclusive which was over 5¼ billion bushels. The yields reported for the different countries were as follows: Spain, 99,211,000, Canada 97,416,000, the Netherlands 93,231,000, Scotland 31,831,000, and Switzerland 27,056,000 bushels.

The potato production of the United States in 1919 was estimated by the Department of Agriculture at 357,901,000 bushels as compared with 411,860,000 bushels in 1918 and 366,046,000 bushels, the average yield for the five years 1913-1917. The area in potatoes was 4,013,000 acres or 282,000 acres less than the area of 1918 but 201,000 acres above the average for the five-year period. The average yield per acre was 89.2 bushels while in the preceding year it was 95.9 bushels and for the 5-year period 96 bushels. The average farm value on Dec. 1 1919, was 161.4 cents per bushel, an increase of 42.1 cents above the corresponding price in 1918 and of 73.4 cents above the average for the five years 1913 to 1917. On this basis the crop of 1919 represented a total value of \$577,581,000, a figure unequaled. In 1918 the total value was reported as \$491,527,000 and for the 5-year period as \$322,292,000.

The potato crop in western Canada suffered serious injury through early frosts on October 8th, which resulted in a loss of about 1,000,000 bushels through freezing in the ground before harvest. In British Columbia nearly 50 per cent of the crop was lost in this way.

Potato flour production, formerly a German industry, was begun in Great Britain during the war, and during the past year a large factory at King's Lynn was using 2000 tons of potatoes per week for this purpose. It is estimated that four factories of this capacity would be able to supply the country's requirements.

In the United States the Iowa Agricultural Experiment Station published during the year an improved method for the treatment of seed tubers for the prevention of certain diseases carried over on the tubers. It was found that by heating the solution of two pints of formaldehyde in 30 gallons of water to 118° to 122°F. the time of immersion could be reduced to 2 minutes from 1½ to 2 hours when the solution is used at ordinary temperatures. The hot solution acts quicker and does not affect germination injuriously.

The results of studies on the cost of producing potatoes in New York, published during the year by the agricultural experiment station of Cornell University, showed a range from \$51.13 per acre or 42 cents per bushel to \$113.51 per acre or 61 cents per bushel for the several localities in which the studies were made. The principal factors causing the variation in the cost of production were the differences in the grades of seed used, the quantities of fertilizers applied, and the amounts of land rent paid.

POYNTER, Sir EDWARD JOHN. British painter, died in London, England, July 26. He was president of the Royal Academy after 1896. He was born in Paris, Mar. 20, 1836, and studied there from 1856 to 1859 under Gleyre. He was professor of art in University College, London, 1871-75, and he was director of the National Gallery 1894-1905. Many of his paintings are well known throughout the world. Among them may be mentioned the following: "Israel in Egypt," (1867); "Perseus and Andromeda," (1872); "Atalanta's Race," (1876); "The Fortune Teller" (diploma picture). (1877); "A Visit to Æsculapius," (1880); "The Meeting of Solomon and the Queen of Sheba," (1891); "Horae Serenae," "Idle Fears," (1894); "The Ionian Dance," (1899); "The Cave of the Storm Nymphs," (1903); "The Nymphs' Bathing Place," (1904); "The Cup of Tantalus," (1905); "Lesbia and her Sparrow," (1907); "Brewing a Storm," (1909); "A Naval Disaster," (1912); "At Low Tide," (1913); "The Sea Bath, or the Champion Swimmer," (1914); portraits of King Edward VII; The Duke and Duchess of Northumberland, and others, and many water colors, figure and landscape.

PRAIRIE PROVINCES. The name applied to the three Canadian provinces of Manitoba, Saskatchewan and Alberta, separated from the United States on the south by the 49th parallel of latitude. Area estimated at 758,817 square miles; population according to census for June 1, 1916 was 1,698,220, as compared with 1,328,725.

PRESBYTERIAN CHURCH. In the United States there are many branches of the Presbyterian denomination, all united under

what is called the Presbyterian Alliance. Statistics for 1919 show that in the whole system there were 2,767,473 communicants with about 5,000,000 adherents. This compares as a distinct setback from the marked increase of last year, namely 2,800,398 communicants. Besides about 5,000,000 in the Reformed Lutheran Church, there are under this system in the world over 35,000,000 adherents and communicants.

In the United States the largest of the branches of the church is the Presbyterian Church in the United States of America. This denomination in 1919 had 1,603,033 communicants, a noticeable decrease from 1918; 9918 ministers; and 9805 churches. For purposes of administration, etc., 40 synods have been formed with 292 presbyteries distributed all over the country. The Presbyterian Church in the United States is a separate denomination, which in 1919 had 364,230 communicants as compared with 363,241 in 1918. This denomination is sometimes called the Southern Presbyterian as most of its churches are in the South. The Welsh Calvinistic Methodist or Presbyterian Church in the United States of America had about 15,000 at the end of the year.

There are two branches of the church in Canada. The largest of these is the Presbyterian Church, which in 1919 had 336,822 communicants. The other is the Church of Scotland which had about 10,000 communicants. The adherents of these churches number about 600,000.

In England and Wales there are three branches, the largest being the Calvinistic Methodists or Presbyterian Church of Wales which has 200,000 communicants and about 400,000 adherents. The Presbyterian Church of England has 85,551 communicants and the Church of Scotland in England has 4000 communicants. These two churches combined have about 400,000 adherents. In Ireland in 1919 the Presbyterian Church in Ireland had 104,194 communicants, the Reformed Presbyterian Church in Ireland had about 4000 communicants and other churches had about 2000 communicants. These churches have a combined number of adherents of about 200,000. In Scotland the Church of Scotland had 721,158 communicants, the United Free Church of Scotland had 522,028 communicants, the Free Church of Scotland had 10,000 communicants and other churches had about 10,000 communicants. These combined have about 2,000,000 adherents. The following are the approximate number of adherents in the various countries: Bohemia and Moravia, 300,000; France, 1,000,000; Germany, 5,000,000; Holland, 2,500,000; Hungary, 3,000,000; Italy, 250,000; Switzerland, 1,700,000; other countries in Europe, 500,000; Africa, 1,000,000; Asia, 600,000; Australasia, 900,000; and South America, 100,000.

In 1919 there were in the Presbyterian Church in the United States of America 1,319,416 Sunday school members which again shows a decrease over the previous year when there were 1,386,928. Budgets voted for 1919-1920 were as follows: Home missions, \$1,759,415; Foreign Missions, \$3,324,493; general education, \$915,000; publication and Sunday school work, \$495,000; church erection, \$467,010; relief and sustentation, \$894,900; freedmen, \$268,122; temperance, \$80,000; evangelism, \$70,000; men's

work, \$34,000; fund for soldiers and sailors and women, \$500,000; fund for churches of Europe, \$500,000; New Era Movement, \$212,200; New Era Movement (special), \$400,000; budget of self-supporting synods, \$1,392,135.50; Woman's Board of Home Missions, \$900,000; Women's Boards of Foreign Missions, \$962,186; Woman's Department of Freedmen's Board, \$131,878; and men's work (special), \$14,000; making a grand total of appropriations of \$13,045,339. Home missionary work is carried on under the direction of the Board of Home Missions, which has done extensive work in the United States, Alaska, Porto Rico, and Cuba, especially the latter. The Board of Foreign Missions conducts 27 missions, 166 stations, 1364 missionaries, not including those sent out under short term, or associate and honorary missionaries, 6806 native helpers, 1003 organized churches, 177,766 communicants, 2122 schools, with 83,723 pupils, 265,960 pupils in Sunday schools, 189 hospitals and dispensaries where 356,134 patients were treated during the year. Pages of Christian literature printed in more than 20 languages during the year numbered 102,179,396. There are 60 Presbyterian colleges and academies in the United States, the largest of which are New York University which had in 1919 an enrollment of 8239 students; James Millikin Univ., Decatur, Ill., with 1111 students; Coe College, Cedar Rapids, Iowa, with 891 students; Maryville College, Maryville, Tenn., with 748 students; Grove City College, Grove City, Pa., with 698 students; and Wooster College, Wooster, Ohio, with 566 students. There was a total of 23,388 students in all the colleges and academies in the country. There are 12 theological seminaries, the largest being the McCormick Theological Seminary in Chicago which had in 1919 an enrollment of 143 students; and the Princeton Theological Seminary at Princeton, N. J., which had 114 students. Hospitals are maintained in the following cities: New York, Philadelphia, Chicago, Pittsburgh, and Newark. These are in addition to the dispensaries and small hospitals maintained by the Board of Home Missions which number 200 and through which more than 1,135,000 patients were treated during the year.

The controlling body of the church, known as the General Assembly, held its annual meeting as usual in May, 1919, with the Rev. John Willis Baer as moderator. Among other things passed by the Assembly were resolutions approving the League of Nations; endowment plan for ten million dollars to be vigorously prosecuted for ministerial relief and sustentation; additional endowment for one million; national prohibition to be aggressively prosecuted including opposition to the repeal of war-time prohibition; Board of Temperance to cooperate in the fields of morals and health, to go forward with work in foreign fields, to take notice of the alarming and deplorable increase in the use of cigarettes; the establishment of two new presbyteries, Toledo and Duck River. For other branches of the denomination, see REFORMED PRESBYTERIANS.

PRICES. In spite of the country-wide propaganda for price control and regulation the prices of practically all commodities continued to rise in the United States during the year 1919. This situation was indicative of the general trend of prices throughout the world, steady increases in commodity costs being reported in all

the European nations as well as India, Japan, Australia, and Africa. Price-fixing regulations instituted by the government relieved the situation slightly for some commodities and prevented much outrageous profiteering, but the rise in prices was so general that little could be accomplished by this means. The inflation of the currency of all the belligerent nations and many of the neutrals was largely responsible for the upward tendency of prices, inasmuch as large bond issues and loans had been made by the respective governments and considerable additions had been made to the paper currency. Industrial irregularities such as labor disputes helped to intensify a situation already acute because of the actual scarcity of various commodities.

UNITED STATES. The index numbers of the Bureau of Labor Statistics for wholesale commodities show concretely the rise in prices. Considering 1913 as a base year with the average level of wholesale prices at 100, there was little permanent change until 1916, when the index number rose from 111 in January to 134 in October of the same year. The following year the price level continued to rise steadily till it reached 187 in July but declined to 183 in December. During 1918 prices maintained their pace standing at 207 during the last quarter of the year. In January, 1919, the index again declined to 203 and in the following month going as low as 197. In March it came up again to 201 and in April to 203. During the months of May and June the index stayed at 207, a calm which presaged the storm that raised it to 219 in July and 226 in August, easily the high water mark of the decade. In September prices eased off to 221 and promised to continue to decline slightly for October. The indexes of the various commodities from which the above composite index was derived are as follows for August, 1919: farm products, 243; food, 228; cloths and clothing, 303; fuel and lighting, 175; metals and metal products, 161; lumber and building materials, 209; chemicals and drugs, 172; house furnishing goods, 259; miscellaneous, 225. This price level was very much higher than any previous level except for fuel and lighting, metals and metal products, chemicals and drugs, all of which reached their highest point in the summer of 1917.

While retail prices have not risen as quickly as wholesale prices, yet the figures for the various levels of the retail price of foods and dry goods show substantial increases. The index number for the combined retail prices of 22 articles of food stood at 101 in August, 1913, at 107 a year later, and in 1915 went down again to 100. In 1916 the steady climb of prices started, the index being 113 for August of that year, 149 for the following year, and 171 for 1918. During July, 1919, the index number had risen to 190 and in August to 192. October saw a slight decline in the general price level of these articles of food.

COMPARISONS. Statistics of the retail prices of foods in the United States and a number of other countries as shown by index numbers weighted according to the importance of the articles chosen, indicate the world-wide extent of the rise in prices. Considering July, 1914, as the base month with an index number of 100, the retail price of 22 foodstuffs averaged from 45 cities in the United States was 98 in 1915,

109 in 1916, 143 in 1917, 164 in 1918, and 182 in July, 1919. In Australia the index number of 46 foodstuffs in 30 towns was 131 in 1915, 130 in 1916, 126 in 1917, 131 in 1918, and 151 in 1919. In Austria the weighted index number of 18 foodstuffs in Vienna was 179 in 1915, 222 in 1916, and 337 in July, 1917, the last year for which figures are available. In Canada the index number is of 29 foodstuffs in 60 cities, standing at 105 in 1915, 114 in 1916, 157 in 1917, 175 in 1918, and 185 in 1919. The cities of France of over 10,000 population except Paris have an index number of 123 for 1915, 141 for 1916, 184 for 1917, 238 for 1918, and 264 for June, 1919. Great Britain's index for 21 foodstuffs in 600 towns is 132 in 1915, 161 in 1916, 204 in 1917, 210 in 1918, and 204 in 1919. In Italy for 7 foodstuffs in 40 cities the figure is 120 in 1915, 132 in 1916, 188 in 1917, the last date for which figures are available. In New Zealand for 5 foodstuffs in 25 towns the index is 112 in 1915, 119 in 1916, 127 in 1917, 139 in 1918, 143 in 1919. In Norway 22 foodstuffs in 20 towns were taken, the index being 129 in 1915, 161 in 1916, 214 in 1917, 279 in 1918, and 276 in April, 1919. Finally Sweden has 21 articles in 44 towns with an index number of 124 in 1915, 142 in 1916, 175 in 1917, 270 in 1918, and 319 in 1919.

COST OF LIVING. A careful analysis has been made of the cost of living in the United States, the statistics being taken first in 18 shipbuilding centres where industry was most stimulated and population most congested, secondly another group of cities both large and small, not so open to rapid price fluctuations, and thirdly, the country as a whole, excluding agricultural commodities. These figures show that there was a 2 per cent increase in the cost of living in these three groups uniformly in June, 1915, a 9 per cent increase in 1916; a 30, 27, and 28 per cent increase, respectively in 1917; 60, 53, 56 per cent in 1918, and an 80, 70, and 75 per cent increase in June, 1919. These figures of the various groups when combined and weighted properly give an estimated index number of 100 for July, 1914, of 102 for June, 1915, of 109 for June, 1916, 129 for June, 1917, 156 for June, 1918, and 175 for June, 1919. The above statistics on the cost of living would tend to show that while there was a general increase of 75 per cent in the whole country, the actual increase varied considerably in different communities, those most affected being the new industrial centres created by the war.

PRINCE EDWARD ISLAND. One of the Canadian Maritime Provinces, the smallest province in the Dominion, situated at the mouth of the Gulf of St. Lawrence, separated from the mainland by Northumberland Strait. Area, 2184 square miles; population, 1911, 93,728. The capital and largest town is Charlottetown with a population (1911), of 11,198. Prince Edward Island is under a lieutenant-governor and legislative assembly of 30 members elected for four years. The lieutenant-governor at the beginning of 1919 was A. C. Macdonald.

PRINCETON UNIVERSITY. An educational institution for men, non-sectarian, founded in 1746 at Princeton, N. J. The enrollment for the fall of 1919 was 1815, while there were 154 members in the faculty. The library contains 430,000 volumes. President, John Grier Hibben, LL.D., Litt.D.

PRINTERS' STRIKE. See **STRIKES AND LOCKOUTS.**

PRISON LABOR. See **PENOLOGY.**

PRIVATE BANKS. See **STATE BANKS.**

PROBATION. See **PENOLOGY.**

PROFITEERING. See **HOUSING.**

PROHIBITION. See **LIQUORS.**

PROSTITUTION. See **SOCIAL HYGIENE.**

PROTESTANT EPISCOPAL CHURCH.

One of the largest single denominations in the United States, this organization in 1919 had 1,085,068 communicants with 5960 ministers. There were also 412,450 Sunday school pupils taught by 47,979 teachers. Lay readers numbered 3106.

Missionary work is carried on by the Board of Missions in Anking, Cuba, Haiti, Hankow, Kyoto, Liberia, Mexico, Shanghai, Southern Brazil, and Tokyo. Some work is carried on in Europe, but it has been impossible to get statistics due to the war. For the year ending Dec. 1, 1918 (the latest available statistics), \$1,450,403.25 was received by the board from 7184 parishes and missions upon an apportionment of \$1,590,376. The total receipts include \$151,079.07 received from the One Day's Income Plan and \$78,961.61 from the Missionary Reserve Corps. Legacies received total \$203,546.51, of which \$137,627.37 were not designated. A General Convention was held in Detroit, Oct. 8, 1919, where reports from the various missions were received. During the year a Council of Domestic Missionary Bishops was formed to expand the home missionary work. Outstanding facts in Latin America were the beginning of work in the Dominican Republic and the taking over in March, 1919, of work in the Virgin Islands. The work in Haiti was expanded, Dr. Grey, the secretary for Latin America, having paid it an official visit. In the winter and spring of 1918-19, Dr. Wood, the foreign secretary, paid a visit to China, Japan and the Philippines, and reports very marked progress. A new hospital was completed at Christ Church Mission, Anvik, Alaska, and also a new church.

The report of the Woman's Auxiliary showed that that organization had done valuable work during the war in raising money for relief work, and in enlisting women for various forms of social service. Two movements, the *Advent Call* and *A Call to Service*, were managed very successfully by the Auxiliary. Also \$70,000 was secured for Saint Agnes' School, Kyoto. The *Spirit of Missions* is the official organ of the Board of Missions.

Chief among the organizations of men is the Brotherhood of St. Andrew, with its 1143 chapters and 8062 members. The organizations among the boys are the Knights of St. Paul, with 160 chapters in various dioceses, and the Knights of St. John. Among the special organizations for mission work are the Church Mission to Deaf Mutes; Society for the Promotion of Church Work among the Deaf Mutes; the Mid-Western Deaf Mute Mission; Conference of Church Workers among the Deaf; the Seabury Society of New York. Among the national organizations for women and girls are the Girls' Friendly Society in America; the Order of the Daughters of the King; organizations for the Increase, Aid, and Better Sustenance of the Ministry; Clergymen's Mutual Insurance League; the Clergymen's Retiring Fund, and the Church Pension Fund. Organizations for edu-

cational purposes, church defense, and propagation are: The Protestant Episcopal Society for Promotion of Evangelical Knowledge; the Clerical Union for the Maintenance and Defense of Catholic Principles; the American Church Union; Albany Cathedral Summer School; Society for the Home Study of Holy Scripture and Church History; Cambridge Conference; the Church Periodical Club; New York Bible and Common Prayer Book Society; the Church Historical Society; the Church Missions Publishing Company; American Society of Church Literature; and the Joint Diocesan Lesson Board. Organizations for social amelioration and advancement are: the Church Association for the Advancement of the Interest of Labor; the Church Socialist League; the Church Temperance Society; the Church Mission of Help, and the Society for Social Advance. There are many other local societies established for promoting church unity, various guilds for devotional purposes, and religious orders for both men and women.

PRUSSIA. Down to the October revolution (1918), a kingdom of the German Empire (see **GERMANY AND WAR OF THE NATIONS**). Capital, Berlin. Area in the German Empire, 134,644 square miles; population according to the census of Dec. 1, 1890, 40,165,219. For details of population, see preceding **YEAR BOOKS**.

PRYOR, ROGER ATKINSON. Judge, died at New York, March 14. He was born in Dinwiddie County, Va., July 19, 1828, graduated at the University of Virginia in 1848, and was admitted to the bar in 1849. After several years passed in editing southern journals he was appointed special minister to Greece in 1855. He was elected to Congress in 1859 and served until 1861; reelected to the next Congress but did not serve. He was a member of the first Confederate Congress in 1862 and meanwhile had entered the Confederate army (1861). On Apr. 16, 1862, he was raised to the rank of brigadier-general but soon afterwards resigned his commission and reentered the service as a private soldier. He was taken prisoner and held at Fort Lafayette, N. Y., 1864-5. In 1866 he was admitted to the New York bar and he practiced until 1890. He was Judge of the Court of Common Pleas 1890-4 and Justice of the Supreme Court from 1894-99.

PSYCHICAL RESEARCH. In the reviews of the past two years, an increase of interest in psychical research, as indicated by the number of published books, has been noted. The reason advanced was the war. J. H. Hyslop (*Jour. A.S.P.R.*, xiii, 197), thinks, however, that in addition to the wholesale loss of life, the skepticism of the age must also be taken into account; that man is now seeking for demonstrations of the future life, whereas in former times his faith was sufficient. However this may be, signs of a return to the pre-war condition are not wanting. The books of the year are not of the Conan Doyle or "Raymond" type; they are for the most part either summaries of the history and present status of Psychical Research, or reports of experiments which have been in progress for a number of years. To the first group J. H. Hyslop contributes two books, *Life after Death* and *Contact with the Other World*. The former is a discussion of certain problems which grow out of results obtained, the latter is a survey of the evidence for a future life. Other books are: H.

Carrington, *Modern Psychic Phenomena*, which deals with the history of psychical research, and with recent experiments and theories; J. A. Hill, *Spiritualism*, its history, doctrine and phenomena, and L. Denis, *Life and Destiny*, an argument for the importance of scientific spiritual research in view of its bearing upon the problem of life. Books belonging to the second group are: H. T. Smith, *Voices from the Void: Six Years' Experience in Automatic Communication*, a report of experiments with the ouija board; W. J. Crawford, *Experiments in Psychical Science*, an account of further experiments in support of the theory developed in *The Reality of Psychic Phenomena*; and M. Cameron, *The Seven Purposes*, an experiment in psychic phenomena.

The presidential address of the British Society for Psychical Research was delivered by Lord Rayleigh only a few weeks before his death (*Proc. S. P. R.*, xxx, 275). The address was principally reminiscent, and was marked by expressions not only of interest in the problems but also of the difficulties in the way of scientific experimentation in this field, and of the need for great caution in the explaining of results. The major papers published by the English Society are: J. G. Paddington, *Fresh Light on the "One-Horse Dawn" Experiment*, (ib., 115); Sir W. Barrett, *Evidence of Supernormal Communications through Motor Automatism* (ib., 251); and W. W. Smith, *The Reality of Psychic Phenomena* (ib., 306). The *Proceedings* of the American Society contain four papers: J. H. Hyslop, *Chance, Coincidence, and Guessing in a Mediumistic Experiment* (*Proc. A. S. P. R.*, xiii, 1), an examination of the author's first report on the trance-phenomena of Mrs. Piper; W. F. Prince, *A Critical Study of "The Great Amherst Mystery"* (ib., 89), in which it is shown that the incidents in W. Hubbell's book of that title were, apart from Hubbell's constructions, based upon a case of double personality; J. H. Hyslop, *A Case of Pictographic Phenomena*, an instance in which visual imagery (apparently of the "habitual" type) is interpreted as a sign of incipient mediumship; and W. Mackenzie, *Rolf of Mannheim, a Great Psychological Problem*, a translation (with notes by J. H. Hyslop) of an article formerly published in *Arch. de Psychol.*, on the well-known educated dog Rolf. Leading articles in the *Journal* of the American Society are: W. F. Prince, *Indicia of Fraud in a Document* (*Jour. A. S. P. R.*, xiii, 412); *Experiments for Alleged Clairvoyance* (ib., 451); W. G. L. Taylor, *The Scope of Immortality* (ib., 137, 210); and J. H. Hyslop, *Supernormal Physiology and the Phenomena of Ideoplasty* (ib., 229); *Recent Experiments in Communication* (ib., 10, 94, 157, 518). C. E. Cory, in a paper on *Patience Worth* (*Psychol. Rev.*, xxvi, 397), gives a brief discussion of the co-conscious personalities of Mrs. Curran, one of which is "Patience Worth" (see YEAR BOOK, 1917).

PSYCHOLOGY. The year in psychology has been a year of readjustment, of the reorganization of departments, as instructors and research students who had been engaged in war-activities returned to their academic work. The close of the year came, however, for many institutions, before this readjustment was complete; and the publications at hand are therefore in part a measure of psychological activities carried on during the war, and only in part an index of restored conditions. The review of the year in-

cludes, moreover, as that of the past two years did not, the contents of a number of German psychological periodicals recently received. Not all of the files are available (many issues of the year 1917 are reported as destroyed by fire in Leipzig); but it is evident that a large amount of substantial work was done in German psychological laboratories throughout the war.

Psychology has lost by death in 1919 J. W. Baird, professor of experimental psychology at Clark University, February 2, at the age of 50 years; and P. Carus, editor of *The Open Court* and *The Monist*, February 11, at the age of 68 years. There died in 1918 E. Abramowski, Polish psychologist, founder of the psychological laboratory at Warsaw, June 22, at the age of 48; T. H. Eisenhans, professor of philosophy and pedagogy at the Technical High School in Dresden, January 23, at the age of 56; J. Grasset, professor of clinical medicine at Montpellier, author of books on hypnotism, occultism, etc., July 7th, at the age of 68; E. Yung, professor of zoölogy at Geneva, a contributor to the psychology of sleep, hypnotism, and suggestion, February 2, at the age of 64; and P. Dubois, Swiss psychopathologist, November 4, at the age of 60.

The annual meeting of the American Psychological Association was held at Cambridge, Mass., December 29-31, under the presidency of W. D. Scott. The American Association of Clinical Psychologists was organized at Baltimore, Dec. 28, 1918.

GENERAL PSYCHOLOGY. *Text-Books and Treatises:* J. R. Angell's *Introduction to Psychology* is a revised and abridged edition of the author's well known text-book, without change in point of view; J. B. Watson's *Psychology from the Standpoint of a Behaviorist* is an extension from the animal to the human organism of the programme outlined in *Behavior*. H. C. Warren's *Human Psychology* and W. S. Hunter's *General Psychology* are two text-books which attempt to combine in a single system the facts of consciousness and of behavior. The former defines the subject-matter of psychology as the mental life of the organism, the activities involved in its interaction with environment through stimulation, adjustment, and response. Psychology thus becomes a branch of Biology. The latter frankly disregards the systematic difficulties involved, because it appears that the two classes of phenomena are, in empirical fact, intimately related, and together make up the science "as it is actually developing in our laboratories." E. Baudin's *Psychologie* (1917) is a general treatise in the sense that it aims to utilize facts "obtained by all methods and from all points of view"; the interest of the author is, however, primarily philosophical, and his point of view biological. H. H. Goddard's *Psychology of the Normal and Subnormal* is written in the interests of practical psychology, of mind in use; it is enriched throughout by the author's long experience with mental defectives. C. C. Peters's *Human Conduct* is another text-book in applied psychology, designed for high school students and the general reader. E. A. Kirkpatrick's *Studies in Psychology* is a series of essays on psychological topics, compiled and written by students under the author's direction. J. A. McGeoch's *The Present Status of Psychology* (Colorado College Pub., No. 103) contains a report of a questionnaire on the teaching of psychology in the

United States, an analysis of the sequence of topics in current text-books, and tests of information in psychology. Books for general reading are: H. R. Marshall, *Mind and Conduct*, Morse Lectures delivered at Union Theological Seminary; W. Lay, *The Child's Unconscious Mind*, an application of the Freudian principles set forth in *Man's Unconscious Conflict* to the pedagogy of the child; W. K. Bradby, *Psychoanalysis and its Place in Life*, another interpretation of Freudianism for pedagogy; P. C. Bose, *Introduction to Juristic Psychology*, a syllabus of studies on the subject for law-students and other interested persons; and H. G. Lord, *The Psychology of Courage*, a book based on the theories of McDougall and Shand. A. Besant, the author of *Theosophy and the New Psychology*, has written a brief *Psychology*; and J. T. Scott publishes a popular *Psychology Simplified*.

The systematic discussion of the year has centred about the subject-matter of psychology and the concept of consciousness. J. Laird (10,261) contends for a descriptive psychology of sense-data (or sense presentations) without regard to their significance or meaning, but at the same time argues against the notion that sense-data are "congeries of apparently disconnected heterogeneous entities"; J. B. Pratt (18,506), on the other hand, objects to the view that perception may be analyzed into sensational elements, because it ignores meaning and outer reference. J. Ward (15,257) points out the importance of distinguishing "sense-data" from sensation, which latter involves both subject and object. H. A. Reyburn (15,19), writing from the standpoint of a metaphysical psychology, criticizes the theory of mental process put forth by S. Alexander. C. A. Strong has published *The Origin of Consciousness*, a sequel to *Why the Mind has a Body*; discussions of Strong's pan-psychic theory are written by J. E. Turner (18,428), D. Drake (18,433), L. J. Russell (15,471), and M. F. Washburn (20,613). Other definitions of consciousness are offered by L. L. Thurstone (18,561), who regards every psychosis as an unfinished act in the process of definition into an overt response, and by E. G. Spalding in *The New Rationalism*, who like other neo-Realists defines consciousness as relation. H. H. Bawden (18,603) protests against definitions of psychology in terms of consciousness, and substitutes a behavioristic formula. H. H. Wieman (16,230) likewise gives a behavioristic definition of mentality; and A. P. Weiss (18,626) points out differences in assumptions, method, and subject-matter between physiological and behavior psychology. Other articles of interest are: J. R. Kantor, *Psychology as a Science of Critical Evaluation* (16,1); A. Lalande, *La psychologie, ses divers objets et ses méthodes* (21,177); J. Laird, *Introspection* (15,385); C. Read, *The Unconscious* (10,28); H. J. Mulford, *What is the Unconscious?* (2,253); W. R. Wells, *The Biological Foundations of Belief* (18,259); and G. A. de Laguna, *Emotion and Perception from the Behavioristic Standpoint* (16,409).

EXPERIMENTAL PSYCHOLOGY. In visual sensation H. Bender (28,1) confirms the result of former investigators that in spectral photometry the flicker method is superior to the method of visual-acuity, and C. H. Griffiths & W. J. Baumgartner (16,75) assert that visualization (acu-

ity) cannot be conditioned solely upon visual sensitivity, although the correlation of the two is slightly positive. C. E. Ferree and G. Rand (16,16 and 150) have determined the chromatic limens of the four principal colors in terms of physical energy from centre to periphery of the retina. Their results differ widely from those of Hess, Baird, and others, who employed physiological stimuli. C. O. Roelofs & W. P. C. Zeeman (8,174), in a study of visual-acuity in twilight vision, conclude that night-blindness is due to a number of different factors. W. V. Lempicka (28,217) has investigated the conditions and results of the mixture of narrow strips and mosaics of gray and colored papers seen at a distance. The results are of interest not only to the theory of vision but also to the technic of impressionistic painting. Other papers in this field are: G. L. Collins, *Color Blindness; Its Relation to Other Ocular Conditions, and the Bearing on Public Health of Color Acuity* (Pub. Health Bull., No. 92); M. Cowdick & M. Winfield, *The Adjustment of the Hering Color-Blindness Apparatus* (2,418); J. von Kries, *Ueber einen Fall von einseitiger angeborener Deuteranomalie* (28,137); and G. J. Rich, *The Daylight Mazda Lamp in the Psychological Laboratory* (2,313). M. Luckeish's *The Language of Color* is a book on vision for popular reading.

M. Gildemeister (28,161) reports that the terminal limen for pure tones is conditioned upon age as well as upon the intensity of stimulus; the limit varies from 20,000 vs. in childhood to 13,000 in middle age. In a second paper (28,253), on the basis of his own experiments and those of M. Wien, he constructs a chart showing the limens of intensity for tones between 50 and 12,800 vs. The resulting curve is approximately bell-shaped, with greatest sensitivity within the octave of 1600 vs. H. Schole (6,242), in an experimental investigation of vowels, seems to confirm W. Köhler's view that simple tones within certain limits have a characteristic mark which may be defined as vowel-like (*vocalisch*), but regards the spoken vowel, in Helmholtz's way, as a combination of harmonic partials. G. J. Rich (2,121), however, in a study of tonal attributes, concludes against Köhler that vocality is not an attribute. On the basis of the numerical limens and his observers' reports he accepts only the attributes of pitch-brightness, volume, and tonality. At the same time, his concept of tonality is nearer to Köhler's *Tonhöhe* than to Révész's *Qualität*. Other experimental papers in sensation are: H. H. Straus & R. F. Uhlmann, *Adaptation of Superficial Pain* (2,422), and L. Gibson & T. Hartman, *The Comparative Sapidty of Hydrochloric, Sulphuric, and Acetic Acids* (2,311). H. Henning has written a general summary of the physiology and psychology of smell for Asher u. Spiro's *Ergebnisse d. Physiol.* (xvii, 1919, 572).

In the experimental investigation of attention H. Lehmann (18,260) finds that the range of attention for successive visual stimuli corresponds with that for sounds without rhythmization; i.e. the maximum is six impressions. J. Wagner (27,d,1), on the other hand, reports that the range of cognitive attention for simultaneous presentation of words and letters may embrace as many as 20 units, provided that attention is spread over the entire field and not concentrated upon a point. H. S. Liddell (2,241) concludes from experiments that fluctua-

tions of visual attention with minimal stimuli cannot, as Ferree had urged, be conditioned upon eye-movement.

In experimental investigations of perception, A. Kirschmann (19,239) finds that one of two geometrical stereograms may be rotated in the frontal plane as much as 12° and still permit of binocular fusion and tridimensionality; a result that should, however, be brought into relation with those of L. Enjalran (see YEAB BOOK, 1917). E. Kaila (27,f,129) proposes a physiological as against an attentional explanation of the fact that double images are normally localized at the distance of the object. C. O. Roelofs & W. P. C. Zeeman (8,79) confirm Hering's account of the conditions of rivalry of contours, and decide that attention in Helmholtz's sense is not a condition but merely an accompaniment of the physiological processes which are effective for the perception. The same authors (2, xcii, 527) report that, in binocular mixture of grays with contours, there is a summation of sensations but not of stimuli. M. Jacobsson (27,a, 77) discovers that small and near objects are in general more readily cognized than large and distant objects (the visual angle being the same), though there are individual differences. P. Wingender (27,f,21) shows that, if the main lines of a geometrical illusion are visually presented, the secondary lines which condition the illusion may be flashed in and out with persistence of the illusion, provided that the rate of alternation is not less than a quarter of a sec. F. Rüsche (19,265) investigates the incorporation of new visual impressions into a previously ideated geometrical form. H. Werner (27,f,198) argues that in both visual and auditory rhythms the perceptive experience varies according to the disposition of the observer. In the interest of theory, K. Koffka (27,f,257) determines formulae for the expression of the relations of the three variables (intensity, distance, and duration of stimuli), which, as found by Korte, condition the tachistoscopic perception of movement. T. Ziehen (28,79) reports that the more peripheral of two cutaneous extents on the forearm tends to be underestimated, and suggests visual-association as the probable explanation; R. W. Sculte (19,339) investigates the maximal interval of successive pressure-stimulations that will allow for the summation of pressure intensities found by Brückner with simultaneous stimulations; O. Klemm (6,71) confirms the results of former studies as regards the relative unimportance of differences in intensity for the binaural localization of sound; M. von Frey & O. B. Meyer (28,301) and M. von Frey (ib., 339) conclude, in opposition to Goldscheider, that the perception not only of passive movement but also of the position of the bodily members is conditioned upon pressure sensations from the skin. An important theoretical work is P. F. Linke's *Grundfragen d. Wahrnehmungslehre*, in which the author investigates the significance for experimental psychology of the *Gegenstandstheorie* of the Meinong School and the *Phänomenologie* of Husserl. The former is disparaged, the latter approved.

L. Lindworsky (27,d,201) is unable to find any attributive difference between perception and idea. It is possible, however, that in some cases there may be an absolute impression of the one or the other, based upon the collocation of attributes. The influence of imaginal factors

upon verbal expression has been studied by E. E. Shaw (17, No. 112), and upon aphasic disturbances by S. W. Fernberger (2,327). R. Hennig (27,c,228) traces to its origin the visual imagery aroused in his own experience by the reading of novels, etc. In the psychology of learning, three papers are concerned with the optimal spatial arrangement of visually presented material: R. Prantl (27,f,293) determines the relative ease with which words are read when rotated like the hands of the clock about the sagittal axis of the two eyes; H. H. Gehrcke (27,c,1) the effect of spacing and rate of succession upon the apprehension of certain vowels in three-letter syllables; and P. Meyer (27,f,1) the influence of spatial position upon the reproduction of previously perceived figures. S. Witasek (communicated by A. Fisher; 27,c, 161) asserts that the complex which appears in the apprehension of nonsense syllables and artificial words is due to the emergence of a form (*Gestalt*); he is therefore unable to accept G. E. Müller's theory of the formation of complexes in learning. L. L. Thurstone (17, No. 114) sets forth a statistical method for the treatment of the data of learning, and C. L. Kjerstad (ib., No. 116) studies the various factors which influence the form of the learning curve. Other papers of interest are: G. M. Stratton, *Retrospective Hypernesia and Other Emotional Effects on Memory* (16,474); J. E. Downey, *The Psychology of Figures of Speech* (2,103); and J. K. von Hoesslin, *Das Gesetz der spontanen Nachahmung* (6,1).

In the psychology of action little work has been done. F. Angell (2,224) reports further results of his endeavor, by aid of a trigger reaction-key, to determine the relations of the length and strength of pull to other factors entering into the reaction. T. Topcin (19,156) studies the succession of two simple bimanual reactions with variable stimulus intervals; and E. B. Titchener (2,62) reports an anomalous case of simple reaction.

The only paper on emotion is a behavioristic account by J. B. Watson (16,165), who regards emotion as "an hereditary pattern-reaction involving profound changes of the bodily mechanism as a whole, but particularly of the visceral and glandular systems." The original emotions, he thinks, are fear, love, and rage.

The experimental investigation of the thought-processes is being enriched by the activities of the Göttingen laboratory. G. E. Müller has (27,f,102) criticized from his associationist point of view the recent book of O. Selz, *Ueber die Gesetze des geordneten Denkverlaufs*, and H. Henning (27,e,) has published the first of a series of experimental studies undertaken from the standpoint of Müller's theory. K. Bühler (27,f,97) reacts sharply in defense of the Külpeans, and Henning (ib., 218) in reply discusses the relation of the *Associationslehre* to the current psychology of the thought-processes. J. M. Gleason (2,1), in an experimental study of "Feelings of Relation," is unable to verify Bühler's earlier results; she finds no pattern of content-processes which can be designated as the "relational complex." The latest publication of the Külpean school is C. Bühler's *Ueber Gedankenentstehung* (27,d,129). M. F. Bassett and C. J. Warne (2,415) have studied the lapse of verbal meaning with repetition.

PHYSIOLOGICAL PSYCHOLOGY. The most im-

portant book of the year is T. Wrightson's *An Inquiry into the Analytical Mechanism of the Internal Ear*. On the basis of new histological researches he argues against the tenability of Helmholtz's resonance theory, and advocates the substitution of a pressure-balance theory of hearing. R. H. Goldschmidt (19,101) and H. K. Schjelderup (27,d,226) deal with theories of reversible retinal processes which are to explain the corresponding phenomena of vision. G. Bohn (21,a,451) discusses not only these reversible processes, but also certain periodic phenomena, on the analogy of depolarization. C. W. Bock (23,a,277) and (2,377) and P. F. Swindle (28,a,257;b,1) are concerned with the rhythmical nature of the instinctive responses of human subjects in free tapping experiments. H. C. Warren (16,197) publishes tentative tables of human reflexes, instincts, instinctive tendencies, emotions, and dispositions. A similar attempt at classification is to be found in W. E. Hocking's *Human Nature and its Remaking* (51ff.). Other papers in this field are: V. Hazlitt, *The Acquisition of Motor Habits* (10,299); P. F. Swindle, *The Peristaltic Nature of Organic Responses* (2,187); C. E. Ferree & G. Rand, *The Speed of Adjustment of the Eye for Clear Seeing at Different Distances* (2,40); and W. R. Miles, *The Effect of Alcohol on Psychophysiological Functions*.

APPLIED PSYCHOLOGY: Psychology and the War. Final summaries of the special activities of American psychologists in the war are: R. M. Yerkes, *The Measurement and Utilization of Brain-power in the Army* (*Science*, N. S., xlix, 221; 251), a review authorized by the Surgeon General's Office; *Report of the Psychological Committee of the National Research Council* (16,83), a summary of the activities of the 17 subcommittees (see *YEAR BOOK*, 1917, 1918); K. Dunlap, *Psychological Research for Aviators* (*Science*, N. S., xlix, 94), a report of the work done under the direction of the author; E. L. Thorndike, *Scientific Personnel Work in the Army* (ib.,53); and W. V. Bingham, *Army Personnel Work* (3,1). Two studies prepared for students of the Army Training Corps are: G. M. Whipple, *The Obtaining of Information: Psychology of Observation and Report* (9,217); and G. S. Hall, *Morale in War and After* (ib., 361).

EDUCATIONAL PSYCHOLOGY. Three new textbooks in this field have appeared: D. Starch's *Educational Psychology*, E. K. Strong's *Introductory Psychology for Teachers*, and R. R. Rusk's *Experimental Education*. The two former deal principally with such topics as the learning process, individual differences, etc.; the latter is a re-issue, with many alterations and additions, of the author's *Introduction to Experimental Education*. Books on special topics are: R. F. Richardson *The Psychology and Pedagogy of Anger*; F. Watts, *Echo Personalities: A short Study of the Contributions of Abnormal Psychology to the Problems of Normal Education*; Th. Erisman, *Angewandte Psychologie*, a book which briefly discusses, beside educational problems, juristic psychology, vocational selection, and hypnosis. Articles of interest in periodicals are: G. S. Hall, *Some Relations between the War and Psychology* (2,211); *The View-point of the Psychologist as to Courses of Study which will meet the Future Demands of a Democracy* (22,90); *Practical Applications of*

Psychology as Developed by the War (22,76); J. Dauber, *Zur Entwicklung der psychischen Leistungsfähigkeit* (14,70); M. M. Nice, *A Child's Imagination* (22,173); G. V. N. Dearborn, *The Psychology of Clothing* (17, No. 112); O. Kupky, *Beobachtung ueber die Entwicklung der Formen* (25,a,179); M. Lobsien, *Prüfung d. Aufmerksamkeit an Kindern mit der Münsterberg'schen Schlittenmethode* (ib., 392; b,40); I. Spielrein, *Ueber schwer zu merkende Zahlen u. Rechenaufgaben* (25,b,146).

The year's discussion of mental tests centres about their reliability and significance. E. L. Thorndike (24,b,189) points out certain weaknesses, but believes that with foresight and care in interpretation the tests are and may continue to be reliable as general measures. M. Schmitt (14,217) concludes from experiments that children from the upper classes score higher on the average than those of the lower classes not only because of environmental conditions but also because of a larger proportion of high intelligence. A. L. Ide (12,204) divides tests into two groups, those that measure capacity, and those that measure accomplishment. Intelligence-tests are not as successful as is to be desired in excluding accomplishment, while the acquirement-test always includes capacity as part of the complex which it measures. J. J. B. Morgan (24,247) gives proof of the validity of intelligence-grades by statistics taken at Camp Hancock; and S. L. Pressey (12,236) discusses the irregularity of results in a Binet examination as a measure of reliability. O. Lipmann (25,a,102) debates from the point of view of Stern's definition a new concept of intelligence, which derives from W. Köhler's *Intelligenzprüfungen an Anthropoiden*, I (*Abhandl. d. Kgl. Sächs. Akad. d. Wiss., Phys.-Math. Klasse*, 1, 1917). Köhler seems to define intelligence as the ability to solve problems presented to sense (*anschaulich gegeben*). Lipmann regards this mode of intelligence as practical or natural, and contrasts it with the theoretical or intellectual intelligence referred to in Stern's view. Other papers are: B. W. James, *Intelligence, Scholarship and Vocabulary* (24,427); O. Lipmann, *Intelligenzmessungen zum Problem d. schulischen Differenzierung* (25,a,354); G. Arthur, *The Application of Intelligence Tests to the Problem of School Retardation* (24,613); and W. Stern, *Zur Anwendung des Intelligenzquotients* (25,a, 259). L. W. Terman has written *The Intelligence of School Children*, a book designed for the use of the grade-teacher, and as an introduction to his *Measurement of Intelligence*; H. Woodrow, *Brightness and Dullness in Children*, a book on the psychology of intelligence for educators and others interested in children; and L. Witmer, *Performance and Success* (12,145), an outline for diagnostic testing and teaching. S. I. Franz's *Handbook of Mental Examinations* has appeared in a new and revised edition. D. Mitchell & G. J. Ruger have published *Psychological Tests; Revised and Classified Bibliography*, which contains 1428 titles.

New tests have been proposed by C. E. Myers & G. C. Myers, *A Group Intelligence Test* (24, b,355); G. Rossolino, *Zur Intelligenzprüfung d. Zurückgebliebenen* (25,a,202); H. J. Humpstone, *Memory-Span Tests* (12,196); E. A. Lincoln & K. M. Cowdery, *An Abbreviated Mental Age Scale for Adults* (24,b,709); E. Morgan,

H. K. Mull, & M. F. Washburn, *An Attempt to test Moods or Temperaments of Cheerfulness or Depression by Direct Recall of Emotionally-toned Experiences* (2,302); and M. A. Walker & M. F. Washburn, *The Healy-Fernald Picture Completion Test as a Test of the Perception of the Comic* (2,304). Results of tests of college students, principally with the Army Alpha test, have been reported from the University of Illinois by D. S. Hill (24,a,542), from Brown University by S. S. Colvin (24,b,27), from Hamline University by G. D. Walcott (ib., 57), from Dickinson College by M. G. Filler (ib., 208), and from Southern Methodist University by H. T. Hunter (ib., 437); of high school students, by I. N. Madsen and R. H. Sylvester (ib., 407). The general result of these tests is that college students as a whole are a highly selected group, as compared with the rank and file of the population represented in the U. S. army. M. F. Washburn, in *A Note on the Terman Superior Adult Tests as Applied to Vassar Freshmen* (2,310), finds however that instructors assign about average ability to "superior adults." As regards Educational Tests, D. Starch has published *A New Scale for Hand-writing* (24,a,184) and *A Revision of the Starch Writing Scale* (24,b,498); F. R. Cawl, *Practical Uses of an Algebra Standard Scale* (ib., 88); S. A. Courtis, *Measuring the Effects of Supervision in Geography* (ib., 61); and J. E. W. Wallin, *The Achievement of Mental Defectives in Standardized Educational Tests* (ib., 250).

Of the year's studies based on the method of correlation, G. H. Thomson has published *The Proof or Disproof of the Existence of General Ability* (10,247) and *The Hierarchy of Abilities* (10,337). In the former paper he holds that the interpretations based on the partial correlation coefficient are for the most part unwarranted, and in the latter he shows other ways in which an hierarchical order may be produced among mental tests than by the action of the hypothetical general ability. J. C. M. Garnett, in *General Ability, Cleverness, and Purpose*, (ib., 345), discovers a new factor which gives low correlations with Spearman's "general ability" and with Webb's "persistence." This trait he calls "cleverness."

In the field of individual differences, H. A. Troops & R. Pintner (3,33) report further studies of the differences in education of men in the industrial world; E. A. Doll (24,a,187) gives a general statement of the problem of mental defectives; G. W. Frazier (3,151), in a comparative study of the variability of boys and girls, shows that the greater variability frequently asserted of boys does not exist; and O. Lipmann, in a book entitled *Psychische Geschlechtsunterscheide*, surveys the whole problem of sex differences.

In the field of vocational selection and vocational guidance, H. C. Link has written *Employment Psychology*, the "application of scientific methods to the selection, training, and grading of employees"; O. Lipmann, *Die Berufseignung der Schriftsetzer* (25,a,105); W. Stern, *Ueber eine psychologische Eignungsprüfung für Strassenbahnfahrerinnen* (ib., 91); and W. Heintz, *Exp. Untersuchung. ii. das Metrum: Ein Beitrag zur Prüfung d. musikalischen Beanlagung* (25,b, 90). E. K. Strong, in *War Psychology and Education* (24,a,697), pleads for the introduction

into educational institutions of the "personnel" classification used in the U. S. army.

New books in Social Psychology are: E. S. Bogardus's *Essentials of Social Psychology*, an elementary book suitable for high schools and popular reading; G. E. Partridge's *Psychology and Pedagogy of Nations*; W. B. Pillsbury's *Psychology of Nationalism and Internationalism*; and H. W. Dresser's *A History of the New Thought Movement*. In the magazines W. Wundt (19,189) vigorously defends his concept of *Völkerpsychologie* as against F. Krüger's *Entwicklungspsychologie*; J. Sargeret (31,a,455) argues from the social effects of the war that the higher sentiments fuse the individuals of a people in a collective unity; H. E. Barnes (2, 337) expresses his belief that, of the various methods of interpreting historical facts, the psychological is gaining ground most rapidly. Other titles are: E. S. Conklin, *Superstitious Belief and Practice among College Students* (2, 83); J. H. Leuba, *The Yoga System of Mental Concentration and Religious Mysticism* (18, 197); H. Henning, *Geruchsspiele in Japan: Ein Beitrag zur Psychologie des Japaners, d. Spiels, u. d. Zeremonie* (25,b,323); and B. Sidis, *The Source and Aim of Human Progress: A Study in Social Psychology and Social Pathology* (1, 91).

In Abnormal Psychology there are two books of a general nature: J. W. Bridges's *Outline of Abnormal Psychology*, designed as a textbook, and P. Janet's *Les médications psychologiques*, the first volume of an extensive work which will bring together the author's many contributions to this subject. In the field of psychoanalysis, E. Jones's *Papers on Psychoanalysis* is a revised edition with 21 new chapters; H. Coriat's *What is Psychoanalysis?* is a small book for general reading; and H. von Hug-Hellmuth's *A Study of the Mental Life of the Child* is based on Freud. C. J. Jung's *Studies in Word-Association* is a collection of papers previously published by Jung and his followers in the *Jour. f. Psychol. u. Neurologie*, and now translated by M. D. Eder. Other books are: A. Mordell, *The Erotic Motive in Literature*; H. Brown, *Advanced Suggestion*, a study in psychotherapy; and H. C. Marr, *Psychoses of the War*. E. J. Kempf (*Nerv. & Ment. Disease Monog.*, No. 28), in a study of the autonomic functions and personality, contends for a physiological interpretation of the facts of psychoanalysis; and A. A. Roback (2,274) shows that typical Freudian lapses may be explained by reference to secondary laws of association. J. B. Kantor (18,236) thinks that the concepts of behavior and disposition are ample for the explanation of human personality and its pathology. T. Schroeder (2,260), on the other hand, makes an ardent defense of Freudianism. G. Heymans & E. Wiersma (27,d,76) point out a type of normal character which shows the fundamental traits of epilepsy. Other papers are: W. H. R. Rivers, *Psychiatry and the War* (*Science*, N. S., xlix, 367); C. Russel, *The Management of the Psychoneuroses in the Canadian Army* (1,27); T. A. Williams, *The Emotions and their Mechanism in Warfare* (1,15); H. Flournoy, *I, Symbolismes en psychopathologie; II, Quelques remarques sur le symbolisme dans l'hystérie* (5,187); and L. H. Horton, *Levitation Dreams, their Physiology* (1,145). F. L. Wells, under the title *Psychological Parerga*

(16,360), publishes a group of papers from the laboratory of McLean Hospital on the general subject of psychotic performance in mental tests and association reactions. A. Gesell, H. H. Goddard, and J. E. W. Wallin (3,81) discuss in a symposium the subject of clinical psychology as an applied science.

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PSYCHOTHERAPY. The death during 1919 of Bernheim, the celebrated authority on suggestive therapeutics, justifies a brief outline of the evolution of scientific psychotherapy. It is usually held to date from the publication in 1847 of James Braid's essay on the power of the mind over the body. This author founded our modern scientific knowledge of hypnotism, which word he also coined. In 1866 Liébault gave the subject a rebirth by writing a monograph with the same title. This physician was at the time an obscure professor in the University of Nancy and founded the so-called Nancy school of hypnotism and suggestive therapeutics, of which Bernheim became the most distinguished exponent. The late Mrs. Eddy founded her cult of spiritual healing about 1865. In 1872 Tuke, the well known alienist, published his celebrated monograph on the influence of the mind over the body, but it is not primarily a therapeutical work. Bernheim published his book on suggestive therapeutics in 1884. During the 80's and 90's a craze for hypnotic healing swept over the world and not a few medical men, some of whom had been eminent in drug therapy, came out boldly for hypnotism as a resource which could "cure everything that surgery could not reach." The great service of Bernheim appears to have been this—he showed that suggestion could accomplish all that could be effected by hypnotism without making it absolutely necessary to denature temporarily the consciousness. Bernheim was a general practitioner, physician in chief to the General Hospital of Nancy, and professor of general medicine in the local university. He was an all-round therapist, neglecting nothing which could benefit his patients, and using suggestion in a certain class of cases only. Given the proper type of patient there was no symptom which could not be reached. The long train of startling phenomena which could be caused in the hypnotic state has been duplicated in the waking state. Various investigators have been able to change the blood formula by suggestion, to cause blisters to ap-

pear on the skin and similar feats, as well as to cure such artifacts by counter-suggestion. Psychoanalysis, originally applied to a limited class of cases, also appears to be widening constantly its therapeutic field.

PUBLIC CLINICS. See SOCIAL HYGIENE.

PUBLIC SCHOOLS. See EDUCATION.

PUBLIC WORKS DEPARTMENT, PROPOSED. See ENGINEERING.

PUGILISM. See BOXING.

PULP. See PAPER.

QUAKERS. See FRIENDS.

QUEBEC. A Province of Canada extending from Ontario, the United States, and New Brunswick northward to Hudson Strait, including most of the Labrador peninsula. Capital, Quebec. Estimated area, 706,834 square miles; population (1911), 2,003,232, of whom 1,605,339 were of French origin. Montreal, the largest city, had a population estimated in 1917 of 700,000, and Quebec, the capital, of 103,000. It is under a lieutenant-governor appointed for five years by the Governor-General, who acts through an executive council. The legislative power is vested in a legislative council of 24 members appointed for life and the legislative assembly of 81 members elected for five years. Quebec's representation in the Canadian House of Commons is 65 members. Lieutenant-Governor at the beginning of 1919, Sir Charles Fitzpatrick; Prime Minister and Attorney-General, Sir Lomer Gouin.

QUEENSLAND. A state of the commonwealth of Australia, situated to the north of New South Wales, next to the largest of the Australian states. Area, 670,500 square miles; population (1911), 605,813; estimated (June 30, 1918), 705,588. Capital, Brisbane, with a population estimated in 1917 at 173,504. Legislative power is vested in a parliament of two houses: The legislative council of 38 members appointed by the Crown for life and the legislative assembly of 72 members elected for three years by universal suffrage. Executive power is vested in a Governor appointed by the Crown, who acts through a responsible ministry. The Governor at the beginning of the year 1919 was Sir Hamilton Goold-Adams; and the Prime Minister and Attorney-General was K. J. Ryan. See AUSTRALIA.

QUICKSILVER. The output of quicksilver in the United States from April 1 to June 30, 1919, according to figures compiled by the United States Geological Survey, was 3940 flasks of 75 pounds net, a decrease of 2020 flasks, or of nearly 34 per cent, as compared with the output in the first quarter. Only 16 mines were producing in the second quarter of the year as against 23 in the first quarter. California produced 2632 flasks, Texas 1244, Nevada 34, and Oregon 30.

The quicksilver on hand at the mines or in transit to market at the end of the second quarter totaled 1635 flasks, 2784 flasks less than the quantity on hand or in transit at the end of the first quarter.

The average monthly prices of quicksilver in San Francisco during the second quarter of 1919, were quoted at \$73.12 for April, \$84.80 for May, and \$94.40 for June. The price increased from \$72.80 in March, the lowest price since the beginning of the war. Production diminished at the beginning of the second quarter owing to the high cost of operation, falling

economy to the carrier. The annual losses, by reason of collisions, which would be prevented by the installation of automatic train-stop and train-control devices, would equip many miles of roads. The saving of lives as well as property should be a sufficient justification for the enactment of this section."

AUTOMOBILE ACCIDENTS AT CROSSINGS. The large number of automobile accidents at grade crossings which had been noticeable for several years did not abate in 1919, although vigorous methods of solving this trouble were taken by the railways themselves. An interesting discussion of this topic was presented by R. J. Clancy, assistant to the general manager of the Southern Pacific, the Western Pacific, and the Tidewater Southern. He stated that the average time that an ordinary passenger train struck a crossing was less than seven seconds, and notwithstanding this fact, many automobile drivers would misjudge its speed or would not wait until the train had passed. As shown by his investigations, covering the first six months of 1919, 18 persons were killed, 81 were injured, and 233 automobiles were damaged or destroyed in grade crossing accidents, compared with 26 killed and 110 injured during a corresponding period in 1918. An analysis of the 233 accidents revealed the fact that 30 stalled on the crossing, 111 attempted to cross almost immediately in front of the train, 59 ran into trains, 1 skidded into a train, 19 ran into and broke down crossing gates lowered to protect them from passing trains, 3 ran into and injured crossing flagmen, 4 ran into cattle cars or crossing signs, and 6 ran over end of track or were not sufficiently in to clear. In the two latter instances the accidents resulted from attempts to escape being struck by train after it was observed that the crossing could not be effected. The result of this exhaustive examination of the serious condition seemed to indicate that in the great majority of cases no precaution or warning signals were of avail, as the drivers of automobiles failed to exercise reasonable judgment and precaution.

SERIOUS ACCIDENTS IN 1919. In the year under review there was a number of serious accidents on American railways resulting in fatalities and injuries. Some of the more important of these accidents are summarized in the following paragraphs.

On Jan. 12, 1919, a serious rear collision of passenger trains occurred on the New York Central at South Byron, N. Y., when west-bound passenger train No. 11 ran into the rear of west-bound passenger train No. 17, second section, at 3.42 o'clock in the morning, killing 22 passengers and injuring as many more. Train No. 17, second section, was standing at the station in order to have attached a helping engine on account of the steep grade westward to Batavia, and this engine was moving backward to its position when train No. 11 struck, so that a double collision resulted. No. 11 was running at about 60 miles an hour, and in the opinion of the inspector who investigated the accident, the brakes were not applied until within about 700 feet of the standing train. The accident apparently was due to the failure of the engineer to notice the signals and the possible failure of the trainman protecting the standing train to carry out effectively all the various measures of safety called for, though both of these matters

were not proved conclusively. The report of the New York State Public Service Commission on this accident also contained a strong argument for an automatic train stop, and the testimony of Frank J. Sprague, the electrical engineer, regarding efforts made in this direction. Certain steps had already been taken for extensive experiments in this field on actual track prior to the war, but the general condition of the railway industry prevented further activity in this field.

On the Bethlehem branch of the Philadelphia & Reading at Fort Washington, Pa., 5 miles north of Jenkintown, and 16 miles north of Philadelphia, on the night of January 13th, 14 passengers were killed and 22 were injured, when northbound local passenger train No. 381, which had been stopped by an obstruction on the line ahead, was run into from behind by express No. 319, and the rear car of the standing train was completely crushed. It was stated that there were enclosed-disk automatic block signals, both distant and home, to protect the standing train, and also a flagman with red light. It was claimed, on behalf of the engineman of train No. 319, that the signal indicated clear.

Four passengers were killed outright, 2 fatally and 20 less seriously injured when a northbound passenger train was derailed near Chick Springs, S. C., on February 8th. The rear coach ran off the track on a high trestle and fell to the ground about 90 feet below. The car was demolished and every person within it was injured. The cause of the derailment was the failure of a steel brakebeam which was caught in a guard rail.

A northbound yard train of the Lehigh Valley running on the track of the West Shore was derailed at Jersey City, N. J., on the night of February 8th. Three trainmen were killed, the engine badly damaged, and one freight car was wrecked.

At Pittsburgh, Pa., on the evening of February 22d a serious wreck occurred where freight locomotive, without train, derailed at a point where the track was being repaired and fell against the Versailles local passenger train. The passenger train was moving at about 40 miles an hour, and three of its coaches were wrecked. Nine passengers were killed, and several were injured.

A collision of two eastbound freight trains at Heaton, Pa., on March 6th, about 5.30 A.M., resulted in a loss of some \$200,000. The leading train, consisting of a locomotive and 85 cars, was at a standstill, the locomotive taking water; and the other train, consisting of a locomotive and 76 cars, ran into it at fair speed, making a bad wreck. A westbound freight was passing on the track to the left; and there were standing freight cars on side tracks both north and south of the two main tracks. Flames burst from the wreckage, and, fanned by a strong wind, spread among the cars on all tracks and also to a bridge above the tracks, the fire not being subdued for 17 hours. Five trainmen were killed and one was injured. The bodies of four of the dead were entirely consumed in the fire. The collision occurred on a straight line, in clear weather. This line, the Trenton cutoff, was operated by the manual block system. This collision occurred in a block section 6 miles long, and the rear of the standing train was 2885 feet east of the entrance to the block section.

A somewhat singular accident occurred near

Cresco, Pa., on March 21st, to a westbound freight, drawn by three locomotives, two ahead and one pushing, while moving at low speed up grade. Due to low water the boiler of the leading locomotive exploded and the engineman, fireman, and one brakeman were killed. The train consisted of 72 cars, and two cars near the rear end were thrown off the track, obstructing the eastbound track.

In a collision near Locust Summit, Pa., on the 10th of April, 18 cars were badly damaged, and the conductor, one brakeman, and the fireman were killed. The train was a through freight, consisting of a locomotive and 35 loaded cars. On account of a defective drawhead the engine and eight cars were moved forward and set off at Gordon, and the engine, returning to its train, collided with the rear portion, which had been left standing on a grade but had started down the grade because of the leaking of the air cylinders.

Near Memphis, Tenn., on April 20th, about 7 A.M., a butting collision occurred in a heavy fog between an employees' train, carrying men to work, and a locomotive without train. Five employees were killed, and six were injured.

One of the most serious as well as much discussed collisions of the year was that occurring at Dunkirk, N. Y., July 1st, when New York Central westbound passenger train No. 41, second section, while standing at the station about 2 A.M., was run into at the rear by westbound passenger train No. 7, consisting of a locomotive and 12 heavy cars, moving at about 40 miles an hour. 12 persons, 8 of whom were passengers, were killed, and 111 injured. It was believed that the accident was due to a trespasser riding between the tender and the first car closing the angle cock in the air brake pipe, with the idea that he could stop the train at his home town. A thorough investigation of this accident was made and testimony of trainmen and other witnesses was being taken, but the general results were unsatisfactory, and no conclusion could be reached except that the closing of the angle cock was the cause of the collision. The important question was whether the brakes were applied, either by hand or by pulling the conductor's valve, and whether a signal was given by the engineer when he realized that his train was not under control. It was brought out that in many respects the conditions of operation were unsatisfactory, and need of additional caution was felt in railway operation.

On August 20th a butting collision occurred on the Pere Marquette at Sabin, Mich., 4 miles south of Traverse City, between a southbound passenger and a northbound freight. Both locomotives were wrecked, and six trainmen killed, and 34 passengers were injured. The crew in charge of the freight, which was extra, had neglected to consider the schedule of the passenger train.

On October 10th a derailment occurred on the Erie Railroad at Belmont, N. Y., where a first class train westbound, No. 9, consisting of a locomotive, 16 express cars, and a car at the rear in which the train crew were riding, was derailed while running at a speed of about 60 miles an hour. The engine was thrown off the track by passing over a misplaced switch and into a side track, and the engineman and fireman were killed. The accident was due to the fact that track repairers working near the scene of

the accident had left the switch open, and though the switch target was visible, and the track repairers were on the spot, the speed of the train was too great to obviate the accident.

Another derailment occurred on October 29th on the South Pacific near Vincent, Cal., when eastbound passenger train No. 50 left the track, and the locomotive, tender, 2 baggage cars, and 5 coaches fell down the bank. One passenger, 2 trainmen, and 2 trespassers were killed and 143 passengers were injured. The train left the track at a curve of 8 degrees 10 minutes on a descending grade of 2.2 per cent, and the cause was unquestionably excessive speed, for all evidence indicated that the track was in perfect condition. The estimated damage to engine, cars, and roadway was \$40,000. This was the first serious train accident in which a passenger had been killed on the Pacific System of the Southern Pacific in 7050 miles since July 4, 1908, or over 11 years.

A rear collision of electric cars occurred near Fredonia, N. Y., in which 5 persons were killed and 13 injured. On October 21st 3 persons were killed and 14 injured in a rear collision on the Interborough Elevated Line in the Borough of the Bronx, New York City. Two passenger cars were badly crushed, but there were only a very few passengers in them.

A grade crossing accident at Clarksboro, N. J., on the night of November 1st was responsible for the death of 16 persons and injuries to about 20 when an automobile truck occupied by 30 men and four women, was struck by train No. 1926 of the West Jersey & Seashore Railroad. The automobile truck, containing a number of pleasure seekers, was approaching a crossing which was without warning signals but afforded an unobstructed view. The men in charge of the train were exonerated by a coroner's jury on November 3d.

A disastrous butting collision between an immigrant train and a freight, occurred on the Canadian Pacific, near Onawa, Me., at 7.15 on the morning of the 20th of December, and 19 passengers and four trainmen were killed, and 35 passengers were injured. Fire following the wreck, some of the victims were burned to death, and some of the injured severely burned before they could be rescued. The enginemen and firemen of both trains were killed.

The immigrant train, with about 300 passengers, formed the fourth section of westbound passenger train No. 39, while the freight was an eastbound extra. Both locomotives were wrecked and the freight engine crashed through the first two coaches of the passenger train. The freight, which had met the third section of the passenger train at Bodfish, 1 mile west of Onawa, should have waited there for the fourth section. The temperature at the time of the collision was about 20 degrees below zero.

FOREIGN ACCIDENTS. The accident record for the British railways forms a striking contrast to that of the United States. During the year 1919 there were three fatal accidents to passenger trains in each of which one passenger was killed. On the London and Northwestern Railway a train was derailed at Acton Bridge Junction on July 16th, and one passenger about three hours later died from the effects of injuries received. On the Caledonian Railway, on October 6th, the day after the strike ended, a passenger was killed at Carstairs Station in a collision be-

tween a moving and a standing passenger train. On November 15th an accident resulting in the death of a passenger occurred at Haverhill on the Great Eastern.

During the year there were several serious accidents on the French railways. At Montieramey, near Troyes, on February 3d, a troop train collided with standing locomotives. Eight United States soldiers were killed and 30 were injured. On Sept. 4, 1919, a train from Bordeaux at St. Sory between Montauban and Toulouse, ran into the Toulouse express, which had stopped, owing to want of steam due, it was said, to bad coal, and 15 passengers were killed and many injured. On November 3d a collision occurred on the P. L. M. Railway at Pont-sur-Yon, about 60 miles southeast of Paris, in which 26 passengers were killed, caused by the Simplon express, which was halted for the same cause, being run into. Several serious collisions on the French railways led towards the end of the year to a further discussion of supplying automatic signals, which have never been extensively employed in France.

Other disastrous collisions in Europe were reported during the year. Late in October a collision between a passenger train and a freight occurred near Kranowitz, Silesia, in which 40 persons were burned to death and over 60 others were severely injured. In a collision at Vigerslev, Denmark, on the 1st of November, five coaches were wrecked, and 41 persons were killed, and many others were injured.

Among the accidents in Mexico, a collision, on January 28th, was reported as having resulted in the death of 25 persons, including 5 women and 3 children. It occurred at Laguna, 160 miles from the Texas border, and resulted from a passenger train running into the rear of a freight.

RAILWAY BROTHERHOODS. See TRADE UNIONS.

RAILWAYS. The second year of government operation of the railways was under abnormal conditions but the same might be said of the operation of the railways under private control in about four out of five years during the entire history of railways in this country. There was a large falling off in traffic in the first six months of 1919. There was no corresponding decrease in the demands for and of labor. There was no corresponding increase in the production of materials as compared with the supply. The steel industry, of which it is always difficult to say whether the depression in railroad earnings, and therefore expenses, is an effect or a cause for a slump remained at the high tide set by the war standards. On the other hand bituminous coal production fell off to a surprising extent. There is presented here a situation which, on its face, seems paradoxical. Transportation of goods is as fundamental in making them available for consumption as is manufacture itself, and manufacture is largely dependent on coal supply. Yet we have the phenomenon of no slackening, at least in domestic demands for goods, but a sudden great decrease in two fundamentals of production. By July 1st, however, business had begun to absorb a much larger part of the capacity of the transportation machine of the country, and in the four months, July to October inclusive, railroad business was at an unprecedented high level. November and December were not quite so good.

The railroads are being operated by a representative of the president—the director-general of railroads—at a fixed rental which is paid to the corporations which own the properties. This rental is the average annual net operating income for the three years ended June 30, 1916. Freight and passenger rates were much higher in 1919 than ever before in the history of the country and were higher by about 13 per cent than in 1918. Nevertheless the government was \$400,000,000 out in its railroad business after having paid the fixed rentals based on 1914-1916. This \$400,000,000 is, of course, an estimate figure based on the known earnings and expenses up to about the first of December. The actual deficit in 1918 after the payment of rentals was \$236,000,000.

The operation of the railways in 1918 by the government was a test only of what could be done with the transportation machine of the country used as an aid in carrying on a foreign war. Revenues and expenses were interesting only because the taxpayer had to make up the difference between the two, but as a test of the efficiency of government railway operation they were worthless. Passenger and freight service in 1918 as rendered to the individual not directly connected with the business of carrying on the war, were no measure of what could be done by government operated railways.

The question of whether or not government operation in 1919 was so overshadowed by war conditions as to also form no criterion of the economy or efficiency of government operation as compared with private ownership, is one which ought not to be answered dogmatically. Every class of service, hotel service, domestic service, service in industrial plants, in public utility plants, other than steam railways, show many of the same tendencies that were shown in railway service. One thing it is fair to say, the much talked about economies which were to follow the unification of all the railways of the country and other operation as a non-competitive whole failed utterly and completely to offset the general tendencies of increased cost of operation. Nowhere is this more strikingly illustrated than in general expenses. The general expenses of railways as defined by the Interstate Commerce Commission are the salaries of the officers not specifically assigned to some one department, the salary of their office forces and the expenses of these classes of railway men. If, under private operation, too much was being paid to the favored few, if railroad officers' salaries were too high, if appointment to executive offices went by favor, not merit, general expenses would reflect these facts. General expenses, however, in 1919, were 11.6 per cent higher than in 1918, and they were also higher than during the so-called test period, 1914 to 1916, when the roads were under private operation.

EARNINGS AND EXPENSES. It must be remembered in discussing railway earnings and expenses, that it was the United States government, through the United States Railroad Administration, which received all of the money paid by passengers and by shippers of freight, and it was likewise the government which paid the wages of railway employees, salaries of railway officers, and the cost of material such as fuel, etc., used in the operation of the railways. Julius H. Parmelee, of the Bureau of Railway Economics, estimates that total operat-



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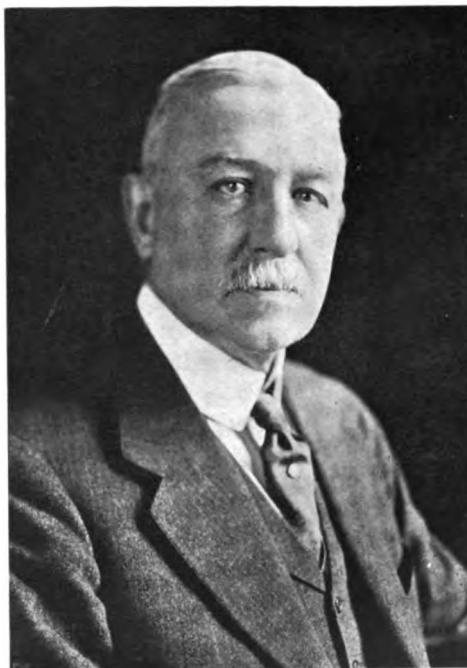
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THOMAS DE WITT CUYLER

**MEN PROMINENT IN RAILWAY AFFAIRS IN THE UNITED STATES
DURING 1919**

ing revenues for 1919 will amount to about \$5,175,000,000, and that total operating expenses will amount to \$4,375,000,000. After the payment of taxes and rentals this leaves \$570,000,000 with which to pay the \$905,000,000 rentals which the government has guaranteed to the railway corporations. The increase over 1918 is 5.0 per cent for revenues, 9.2 per cent for expenses, and the deficit to the government after paying rentals is \$400,000,000 in 1919, and \$236,000,000 in 1918. The increase in revenues came from the large increase in business in the last half of 1919 and the high rates for both passenger and freight in effect during the entire year 1919. The higher expenses were due to some high rates of wages paid certain classes of employees; to the wider expansion of the application of the eight-hour day with the same rate of pay which was heretofore paid for a 10-hour day; the payment of overtime for work not heretofore paid overtime, and to a decreased amount of work done per hour per individual. No one of these causes of increased expenses can be laid unqualifiedly to government operation. Increased rates of pay have been almost universal for all classes of labor, and decreased efficiency has been likewise almost universal. All that can be said, however, is that government operation did not offset this tendency, which affected all classes of industry.

LABOR SITUATION. In 1918 the total payroll of the railways being operated by the government was \$2,593,000,000. This was very much more than the payroll in 1917—the estimated difference is \$583,552,000, but did not represent what would have been paid for the entire year on the basis of the wage schedule in effect Jan. 1, 1919. This is because the increases granted in 1918 were not effective for the full calendar year. In 1919, however, further general increases in the wage scale were made amounting to about \$151,000,000 a year. The trainmen were granted an increase of \$60,000,000 a year in wages. The railway police, the railway dining car employees and some other classes were granted an increase of \$5,000,000, and on May 1st a national agreement was made with the shop men which gave them \$50,000,000 additional wages for the remainder of the year. On December 1st, the trainmen were granted a further increase amounting to about \$36,000,000 a year and on December 16th, the maintenance of way employees were granted an increase, the total of which cannot be as yet estimated.

MAINTENANCE OF FACILITIES. A provision of the standard contract made between the government and the railways is that the roads shall be returned to their owners in as good condition as they were when taken over on Jan. 1, 1918. The Railroad Administration has interpreted this to mean that as much shall be spent for maintenance annually as was spent on the average annually during the test period, making allowance for the depreciated purchasing power of the dollar. In estimating this depreciation in purchasing power, however, no comprehensive analysis is made of the decrease in efficiency of labor. That is, a man hour of labor is taken at the same value, measured in work done in 1919 as in 1914–16. It is the consensus of opinion, however, not only of railroad men but of all other employers of labor, that a man hour in 1919 did not average as much work as a man hour in 1914–16. In the first nine months

of 1919, maintenance of way for class one (roads earning over a million dollars a year each), was \$575,122,000. Compared with \$311,096,000, the average for the corresponding nine months on the average in the test period, this is an increase of 85 per cent. Corporate officers of the railways claim that this has not been sufficient to keep the roads in as good condition as they were when the government took them over.

In 1919 about 1,350,000 tons of new rail have been laid in maintenance of way. This compares with 1,328,000 tons laid on the average annually in the test period. On the other hand, during nearly all of the test period, rail renewal was curtailed by the European demand for steel and during 1917, it was curtailed still further by the shortage of labor. In other words, rail renewal in the test period is not a true criterion of 100 per cent upkeep on American railway properties, although it would seem to be a fair enough criterion of the government's obligation in so far as rental and maintenance of rented property is concerned. In 1919 about 85,000,000 ties were used in maintenance. This compares with an average of 94,835,000 ties used in maintenance in the test period. It is not possible to accurately measure in figures the condition of locomotives and cars, but railway officers, both corporate and federal, are generally of the opinion that maintenance of this equipment has not been adequate during the past two years. The Railroad Administration, following the practices of most of the railroad companies, did not make extensive repairs to equipment when traffic fell off as it did in the first six months of 1919. On Aug. 16, 1919, there were approximately 229,000 bad order freight cars. That is, cars needing repairs so badly that they were not being used in service. By November 15th, however, this number had been reduced to 131,000. Even this figure, however, is an abnormally high one. On the best maintained roads under private operation, bad order cars do not average more than 5 per cent of the total number of cars owned.

INTENSIVE AND EXTENSIVE RAILWAY DEVELOPMENT. Only a small part of the amount which the government had decided upon spending on the roads for additions and betterments in 1918 was actually spent. This was due to the shortage in both labor and materials. When the let-up came, however, after Nov. 11, 1918, the Railroad Administration was somewhat hesitant about railway expenditures. The revolving fund so called, which was in substance the working capital granted to the Railroad Administration by Congress, of \$500,000,000 proved inadequate and the director-general asked for an additional \$750,000,000 appropriation. This appropriation Congress failed to make before it adjourned. The total cost of additions and betterments to existing lines, exclusive of equipment which was authorized by the Railroad Administration, over 1918 was \$523,000,000 and for 1919, up to September 30th, \$154,000,000. The actual expenditures during 1918 were \$263,000,000, and during 1919, up to June 30th, \$185,000,000, a total of \$448,000,000 expended against an authorized expenditure of \$677,000,000. Of the various classes of work, the additions to shop buildings and engine houses came nearer actual expenditure to the authorization than any other. The total authorized from Jan. 1, 1918 to Sept. 30, 1919, was \$79,028,000, and the total actually spent

was \$71,060,000. This contrasts with an authorized expenditure of \$143,372,000 for additional yard tracks and sidings, and an actual expenditure of \$91,848,000.

The need in this country appears to be for intensive rather than extensive railway development. The *Railway Age* estimates that the railways of the country will need to spend \$6,000,000,000 in the next three years for making up delayed maintenance and arrested development, and for catching up with the needs of increased traffic. It is the writer's opinion that this is very considerably higher than will actually be spent regardless of what the theoretical needs may be. The fact remains, however, that in the East and on certain lines and in certain terminals in the West, the railway facilities are even with the present traffic, being strained to the utmost.

RAILWAY EXTENSION. In 1902 when railway extension was most rapid in this country, over 6000 miles of new line was built. Even as late as 1910, over 4000 miles was built and in 1919 only 686 miles was built, the smallest mileage in any one year since the Civil War. In no one of the three years since 1916 has as much as 1000 miles of new line been built. F. J. Lissman of F. J. Lissman & Company, New York bankers, specializing in financing of new railroad building, estimates that not over 2000 miles at most of new line will be built on an average in the next few years, even assuming that government regulation of railway rates is such as to restore the credit of existing railway companies. In no State in the United States was as much as 100 miles of track, which includes both first, second and third track, etc., built, in 1919. In Oklahoma 92 miles of new first track and seven miles of second track was built, and in Texas 82 miles of first track and a little over 10 miles of second track was built. In 1919, 636 miles of main line railway was abandoned. This makes a total of 3319 miles of main line railway abandoned in the years 1917 to 1919 inclusive, while during those years, only 2386 miles of extensions and new branch lines were built. It would appear, therefore, that Mr. Lissman's estimate of new mileage to be built in the future is rather the best that can be hoped for, than the amount that may actually be expected.

RECEIVERSHIPS AND FORECLOSURE SALES. Only 244 miles of railway was placed in the hands of receivers in 1919 and no part of this was government operated railway.* A few unimportant short line railways not under government operation were sold under foreclosure, the total mileage being 459 miles. One important railway, the Boston & Maine, was re-organized and taken out of the hands of receivers without foreclosure sale. At the end of 1919, there was a large mileage of railway in receivers' hands in the United States, having a total outstanding securities of approximately \$957,000,000. The most important of these roads, are the Denver & Rio Grande, 2610 miles; the Missouri, Kansas & Texas, 3536 miles; the Texas & Pacific, 1947 miles, and the International & Great Northern, 1160 miles.

DIVIDEND CHANGES. The rental paid the rail-

ways being the same in 1919 as in 1918, and fixed charges and dividends being paid out of this rental, it was to be expected that no changes would take place in the rate of dividends on government operated roads. There was one exception to this however. The Lehigh Valley, which had been paying annual dividends of 10 per cent on its stock, reduced its annual rate during 1919 to 7 per cent. This presumably was a conservative step taken in order to insure adequate working capital for the corporation when the road is returned to the owning corporation on Mar. 1, 1920.

INSTALLATION OF BLOCK SIGNALS. While the government, which for years has criticized private corporations in regard to their safety appliances and accident record, made experiments with unification of terminals, re-routing of freight, re-organization of managements, etc., it did less than the railways had been doing themselves toward the further installation of block signals as a preventive to railway accidents. In 1919, a total of 1880 miles of automatic block signals were installed and 144 miles of manual block signals. The government, which is to relinquish the roads on March 1st, is naturally not making any plans for the future installation of signals and the private corporations are apparently waiting the outcome of proposed federal laws regulating railways before formulating their plans. There are only 342 miles of additional automatic signaling proposed for 1920 and only four miles of manual block proposed.

RAILWAY LEGISLATION. The railway situation and proposed legislation providing for some modification of the existing Interstate Commerce Acts was the subject of discussion in both branches of Congress during the entire year. President Wilson, after he returned from the Peace Conference said that he would return the railroad properties to the owning corporations on Jan. 1, 1920. The Senate Committee on Interstate Commerce, of which Senator Cummins of Iowa is chairman, held a series of public hearings and formulated a bill known as the Cummins Bill S 3288. The House Committee on Interstate and Foreign Commerce, of which Representative Esch is chairman, also held a series of hearings and introduced a bill in the House known as the Esch Bill HR 10,453. The Esch bill was considerably amended before being passed by the House and the Cummins bill was passed by the Senate with no important changes. The two bills were referred to a joint committee of the Senate and House and this committee was at work at the end of the calendar year.

Before describing the two bills some mention should be made of the various proposals which were made to the two Congressional committees, but which were not acted upon.

William G. McAdoo, director-general of railroads in 1918, urged the passage of a bill extending the period of government operation for five years. The five-year proposal aroused immediate opposition in Congress and generally throughout the country, but Mr. McAdoo was given a full hearing before the Senate committee and was followed by Mr. Hines, who supported his recommendations. The committee, however, showed no disposition to accept the idea of the former director-general and proceeded with the hearing until near the close of the Congressional session with a view to considering plans for permanent legislation. It did not even report on

* It will be recalled that the government did not take over many of the short line railways when it assumed operation of the principal larger railways of the United States, Jan. 1, 1918.

the five-year proposal and the House committee finally gave up the idea of holding any hearings on it.

Both the shippers and the public were thoroughly dissatisfied with government operation; so were a great many railroad officers, but on the other hand the organized railroad employees put forward a plan, known as the Plumb Plan, for government ownership of the railroads. The Plumb Plan, fathered by Glenn E. Plumb, a lawyer in the employ of the railroad brotherhoods, would have provided for the government purchase of the roads and their operation under the joint direction of the employees, the government and railroad officers. The plan was not treated seriously by the Cummins committee before whom it was introduced. Nevertheless it received wide publicity, scornful discussion on the part of the majority of newspapers and secret or open approval on the part of a great number of railway employees.

The Cummins bill provides for: Ownership and operation of all the railroads in the United States by 20 to 35 separate competing systems; consolidation of all railroad properties into 20 to 35 systems in accordance with a plan previously adopted by the Railway Transportation Board and approved by the Interstate Commerce Commission—consolidation to be voluntary if accomplished within seven years, and if not, compulsory; federal incorporation of all railroads with a requirement that each corporation shall include in its board of directors two representatives of classified employees and two representatives of the government; exclusive regulation and control by the Interstate Commerce Commission of the issuance of railway stocks and bonds and of the purposes to which the proceeds thereof may be applied; initiation of rates by carriers subject to the approval of the Interstate Commerce Commission. Requirement that the Interstate Commerce Commission shall divide the country into rate districts and the carriers into rate groups for rate making purposes. Regulation of all rates that affect interstate commerce by the Interstate Commerce Commission under a statutory rule providing that in making rates for the several rate groups the Commission shall take into consideration the interest of the public, the shippers, the wages of labor, the cost of maintenance and operation, including taxes and a fair return on the value of the property; creation of a committee of wages and working conditions (four employees and four representatives of the companies) to settle disputes; with appeal to the Transportation Board in case of deadlock. Declaration that decisions of the board, i.e., of the government, shall be final, and that railroad strikes and lockouts are forbidden. A violation of this provision is made a misdemeanor punishable by imprisonment.

Continuance of the Interstate Commerce Commission with enlarged powers to regulate rates and security issues. Creation of a Railway Transportation Board with five members appointed by the President to perform many important executive and administrative functions, including some now performed by the Interstate Commerce Commission.

The Esch bill provides for: Ownership and operation of all railroads by private corporations under broad federal supervision; consolidation of existing railroad systems when approved by

the Interstate Commerce Commission; opposition to federal incorporation as a complicated, protracted and probably unconstitutional method; full control by the Interstate Commerce Commission over stock and bond issues and over the expenditure of the proceeds; regulation of rates by the Interstate Commerce Commission under the provisions of the Act to Regulate Commerce with amendments shortening the period of suspension of rates, authorizing the commission to determine the division of rates between carriers, to consider the cost of service principle in fixing rates, and to exercise other broad powers affecting the general rate structure; maintenance of the Interstate Commerce Commission with all of its present powers and in addition authority to regulate carriers by water; to control consolidations, joint use of facilities and the pooling of freight earnings; to authorize additions, extensions and the construction of new lines; to adjust conflicts between federal and state jurisdictions; and to control security issues and capital expenditures. It will be noted that no declaration is made in the Esch bill about wages and working conditions.

It will also be noted that the Esch bill contains no provision against strikes except the machinery for voluntary adjustment through boards of adjustment and commissions of labor disputes to which appeals may be taken, both composed of an equal number of representatives of the employees and of the managers, although some of the labor leaders are said to be suspicious of a paragraph which was left in the bill providing that "it shall be the duty of all carriers subject to this act and their agents, officers and employees to exert every reasonable effort and adopt every available and reasonable means to avoid interruption to the operation of a carrier," because another paragraph provides a penalty for violation of any of the provisions of the sections relating to labor disputes.

The Cummins bill as reported by the full committee and as passed by the Senate with comparatively little change is regarded as a great improvement over the bill, S. 2906, drafted by the sub-committee, which proposed to confiscate all earnings above a "fair return" and which contained many defects.

The principal point of contention involved in the entire discussion of the proposed railroad legislation during the past year, with the possible exception of the method of dealing with labor controversies, has been the question of a rule of rate making designed to insure an adequate income to the carriers by a more specific expression of policy than the old rule that rates shall be "just and reasonable." The House committee throughout its hearings seemed inclined to rely entirely on the Interstate Commerce Commission but after Commissioner Clark had indicated in a general way that the commission might welcome a legislative declaration of policy, the committee adopted the general rate making rule which was stricken out in the House.

The rule adopted by the Senate committee and later by the Senate is an evolution from the idea of a minimum guaranty, such as was proposed by Mr. Hines and others. The guaranty idea was discarded as being too liberal to badly located or poorly managed railroads, and as tending to promote lack of enterprise and efficiency. Both the Warfield and the transportation conference plans proposed the principle of a legis-

lative assurance of a definite percentage rate of return upon the aggregate value by districts and a limitation upon the excess, by various provisions for distribution. Both plans provided for a rate of 6 per cent. For a time a division of the excess earnings with labor was discussed and such a plan was included in the Senate sub-committee bill, but was discarded because of the expressed opposition of labor to the idea of profit sharing. The railroad executives through their association opposed a fixed percentage and also a limitation, although some of them favored both provisions.

The rate making provisions of the Cummins bill as passed are stated in Section 6, which under the ordinary interpretation of conference rules must be accepted or rejected as a whole or modified only in detail, are in part as follows:

In dividing the country into districts and the carriers into rate making groups, the commission shall have in view the similarity of transportation and traffic conditions therein. Rates of transportation shall at all times be just and reasonable and sufficient to produce a reasonable return upon the aggregate value of the property in each rate group used or held for the service of transportation.

It being impracticable to establish a level of uniform rates and charges within competitive areas which will sustain sundry carriers indispensable to the communities served by them, without enabling more favorably situated carriers to receive revenue from such rates, negligibly as to each service, but in the aggregate substantially and unreasonably in excess of the aggregate over a fair return upon their property, unless regulated in the interest of the commerce of the United States as a whole, it is hereby provided that, subject to the exceptions and conditions of this act, no carrier subject to the provisions of this act shall be authorized to receive and retain for the transportation services rendered such proportion of the rates and charges collected by it as may yield in the aggregate more than a reasonable return upon the value of its property held for and used in the service of transportation, determined as herein provided. In changing or modifying rates, fares, charges and classifications from time to time in the manner provided in the act to regulate commerce, as amended, and in viewing them from the standpoint of their effect in producing revenue in any rate making group as a whole, the commission shall initiate, modify, or adjust rates, fares, charges and classifications as nearly as may be, so that the railway carriers as a whole allocated to each district and subject to this act shall earn an aggregate net railway operating income equal, or nearly as may be, to $5\frac{1}{2}$ per centum upon the aggregate value, as determined in accordance with the provisions hereof, of the railway property of such carriers in the district held for and used in the service of transportation.

If, under the above provisions, any carrier shall receive a net railway operating income in any year of more than six per centum, after allowance, as aforesaid, by the commission for non-productive improvements, upon the said value of its property, one-half of such excess between six and seven per centum shall be placed in a reserve fund established and maintained by such carrier, and the remaining one-half of such excess between six and seven per centum

shall, within the first four months of the succeeding year, be paid to and recoverable by the board for the purpose of establishing and maintaining a general railroad contingent fund, as hereinafter described. Of any such excess above seven per centum, one-fourth thereof shall be placed in the reserve fund to be established and maintained by the carrier and the remaining three-fourths thereof shall, within the time aforesaid, be paid to and recoverable by the board as a part of said general railroad contingent fund as hereinafter described.

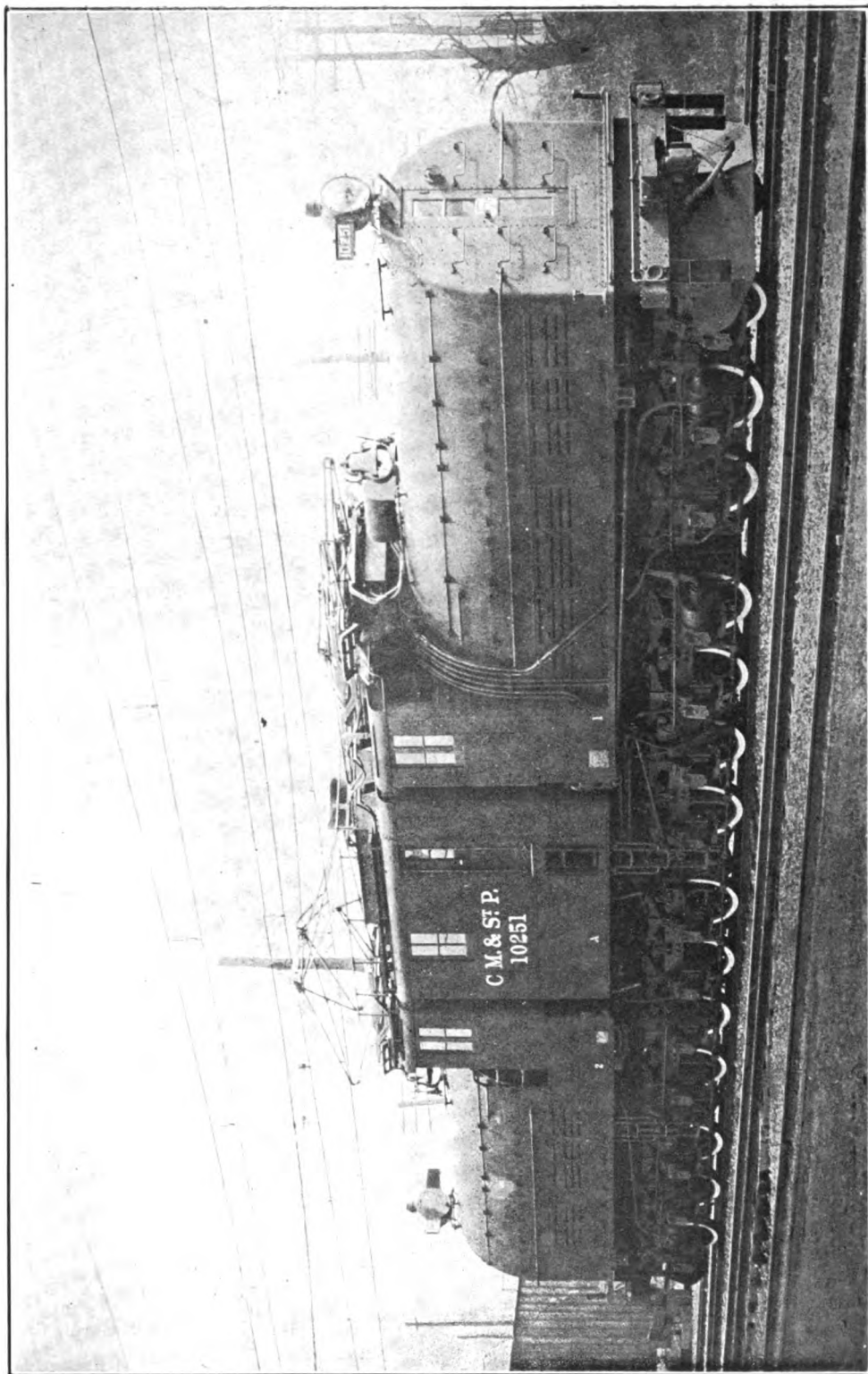
The President set Mar. 1, 1920, as the date on which the railways are to be returned to the owning corporations.

RAILWAYS, ELECTRIC. One of the outstanding facts of the year was the increasing deterioration in the financial condition of the majority of street and interurban railways in the United States. Continuous increases in the cost of labor and materials impelled the roads to seek permission to charge higher rates which in many cases were granted. In New York City, however, the Board of Estimate raised such violent opposition to granting increased rates of fare that several lines of surface cars discontinued operation, their place being taken by municipal (sic) bus lines, and after many unsuccessful hearings, the Interborough Rapid Transit Company, operating the subway and elevated lines, was seriously considering withdrawing its application. In other localities there were certain fare increases allowed, and at the close of the year it was generally believed that the worst part of the period of unprofitable operation had been passed.

The zone system of fares was tried in many large cities, but with varying degrees of success. In New Jersey, the lines of the Public Service Corporation put this system into effect in the district around the city of Newark and also at Camden, in the southern part of the State. The result was unsatisfactory, not only to the railways but also to the public, who seemed to be markedly averse to the zone system of fare collection. To such a degree was this the case that after several weeks' trial, the company discontinued the system, on permission of the Public Service Commission. On the lines of the Connecticut company, on the other hand, zoning proved not only satisfactory to the public but profitable to the company.

Owing to conditions prevailing on all traction lines, very few new cars were built during the year. A reliable authority estimated that 75 per cent of those actually constructed were, it may be noted, of the "one man" or safety type. The one man car, in addition to operating at a smaller cost for wages, provided greater freedom from accidents to passengers, since the entire operation, including the opening and closing of the doors was under the direct control of one man, whose work was rendered somewhat easier, however, by the ingenious devices provided and installed within easy reach.

The year was marked by the completion of about 200 miles of electrified line of the Chicago, Milwaukee, and St. Paul railway through the State of Washington to Seattle. The operation of the electrified line of 440 miles through Montana and Idaho mentioned in the 1918 YEAR BOOK had proved so satisfactory that the railway was building at the close of the year a number of new locomotives for service on these lines. The



ELECTRIC LOCOMOTIVE
3,000-volt Gearless Passenger Locomotive, Chicago, Milwaukee & St. Paul Railway

General Electric company and the Westinghouse Electric & Manufacturing company were supplying these engines, the largest and most powerful electric locomotives that had been put in regular service up to that time. Heavy electrification was also attracting a great deal of attention in other countries and it was expected that Italy, France, and England would begin extensive construction of this kind in a very short time. The suburban railways at Melbourne, Australia, were operated entirely by multiple unit trains at the close of the year, and several railways in England were extending service of this kind where traffic requirements rendered the change absolutely necessary.

RAINFALL. See METEOROLOGY.

RANDOLPH, ROBERT LEE. American oculist and professor of ophthalmology, died at Baltimore, Md., December 12. Since 1901 he had been professor of ophthalmology and otology. He was born at Fredericksburg, Va., Dec. 1, 1860. He studied chemistry and physics at Johns Hopkins University 1880 and received the degree of doctor of medicine from the University of Maryland, 1884; studied afterwards in Vienna, and was attending surgeon at the Presbyterian Eye and Ear Hospital, Baltimore, from 1887-92. In 1892 he joined the teaching staff of Johns Hopkins.

RAPID TRANSIT. During 1919 the many difficulties involved in urban and interurban transportation became if possible even more complicated. Increasing costs of material, decreased efficiency of labor coupled with higher wages and shorter hours, disagreements between local or other supervisory authorities and the traction companies all served to disturb conditions everywhere. Furthermore the connection with the daily and local life of the community was so intimate that traction difficulties figured in municipal politics and policies not infrequently with a lack of sympathy on the part of local governments toward the owning companies and their stock and bond holders. In most cases the companies were handicapped through their inability to charge more than the traditional five cent fare for the unit ride, and as in most cases in the large cities lines were being operated at nearly or quite full capacity there was but slight opportunity for increased gross returns. On the other hand the cost of fuel, equipment and supplies had mounted and labor claimed an increased return in the form of wages adjusted to living conditions. Increased fares and fewer transfers or a charge for this privilege were demanded by the traction companies, and in some cases were granted but often the local authorities refused or resisted such arguments and pleas, alleging that the roads were overcapitalized and that they had paid high dividends in previous years and that they should be operated more efficiently or that deficiencies should be met out of surplus. The result was that many street railway systems were forced into the hands of receivers and where they were made up of a number of leased lines often these were returned to the original owners as the guaranteed rents could not be met. This led to disruption of systems in many localities and universal inefficiency of service, as equipment often was permitted to run down and funds were not available for the purchase of new cars, which were required especially where the traffic increased. In New York the New York City Rail-

ways went into the hands of a receiver as did the Brooklyn Rapid Transit and a controversy with the municipal government was continuous during the year in which from time to time the United States courts participated. In New Jersey an increased fare was resisted and in other states lines were voluntarily abandoned. Each locality had its own difficulties and its own methods of dealing with them for better or worse. At the end of the year it could not be said that solutions had been reached in many instances or that extraordinary sagacity had been exercised in dealing with the problems.

Under such conditions it was not strange that there should be a lack of new projects proposed or undertaken for private capital was decidedly cautious about such undertakings and municipal ownership, especially in existing bonded indebtedness did not commend itself to the general mass of the voters.

Progress was made however on a few American projects, some of which are discussed herewith.

NEW YORK. While the city of New York was the scene of acrimonious discussion and dispute in regard to its passenger transportation, nevertheless rapid-transit facilities materially increased during the year 1919. Transit Construction Commissioner John H. Delaney, who had succeeded in 1919 to the construction functions formerly exercised by the Public Service Commission, reported that: Track mileage of the two operating companies increased 35.13 track miles during the year, and indications were, according to Commissioner Delaney's figures that 69½ track miles would be added during 1920. The Interborough facilities were increased by 15.77 track miles during 1919, and the New York Municipal (B. R. T.) system was expanded 19.36 track miles. Thirty-seven construction contracts, involving approximately \$48,000,000, were under way Dec. 31, 1919 and upon them work amounting to about \$10,000,000 was done during the year. Approximately \$10,000,000 worth of work remained to be done on these contracts.

PHILADELPHIA. During the year the City Hall section of the Broad Street subway in Philadelphia was virtually completed, and involved what was considered the largest single underpinning undertaking ever carried out, and also the most costly section of rapid transit construction in existence, as the expenditure was exceeding \$20,000,000 per mile. The work involved the undermining of the massive Philadelphia City Hall on an area of more than an acre and the construction of a four-track subway with stations, and also taking care of the two branches of the Market Street subway south and north of the City Hall. The total area of the work was about 700 by 100 feet, and the City Hall and old subways had to be supported at all stages and a new foundation to carry them without settlement, built in the course of the work. The original plan of the Philadelphia subway provided for a four-track line north and south along Broad Street, carrying the tracks directly under the City Hall instead of around it, with only sufficient divergence to avoid the large tower, which, rising to a height of 550 feet, is the city's distinguishing landmark. As there was already a subway east and west in Market Street which curved around the building, the new subway had to cross under both branches.

The difficulties of this work led in 1916 to a proposal to change the location of the subway, bringing it around the City Hall, but this was rejected by popular vote at a special election, and the original plans were proceeded with. As work of exploration was begun, it was found that difficulties not previously anticipated were to be encountered, and that it would require the underpinning of the building and the rebuilding of the foundation walls and a special form of construction for the tubes themselves. The old rubble footing walls of the building were reconstructed and reinforced concrete girders or steel girders were placed alongside of and integral with the foundation walls to carry the load between the future inter-track subway walls. In other words, the entire subway roof was constructed on the ground surface through or adjoining the footing walls of the City Hall, forming for the time being the lowest course of the building.

Once the roof structure of the subway was completed, supporting piers were constructed under the ends of all the girders by piles of steel pipe, which were sunk to bedrock in the bottom of the excavated pits. These piers were set very close, side by side, and formed continuous walls which are the enclosing and inter-track walls of the subway and take the place of the separate piers of the original design. In other words, when the piers were completed, the whole subway structure had been built except for floor details and interior finish, and the only excavation necessary was to dig out the core in order to bring it into active service as a support for the City Hall structure. This method of building the subway from the roof downward by continuous underpinning was one of the most elaborate ever required in such construction, and the underpinning and foundation work, as well as the steel girder construction, required engineering of no mean order. This interesting development is described at some length in *Engineering News-Record* for Aug. 14, 1919.

DETROIT. A system of downtown street car terminal loop subways was an important feature of rapid transit studies for Detroit prepared by Barclay, Parsons & Klapp and submitted to the city authorities in September, 1919. This involved a loop system with subways, intended to relieve street congestion by removing from the surface most of the cars that had been using the downtown streets and permitting an increase of street car service. The plan was provided that the new subway would be the initial element of a rapid transit system, and was so favorably regarded by the city officials and council that a popular vote on a bond issue to carry out its general features was proposed. The project called for two subway loops, one in Woodward Avenue extending from near Adelaide Street to a loop near Atwater Street, with five stations, and one in Fort Street, beginning west of Cass Avenue and passing under the Woodward Avenue subway and terminating in a loop at Cadillac Square, where would be located the transfer station for eastbound surface cars. A main transfer station would be located just north of the City Hall, where traffic would be interchanged between the two subways.

CLEVELAND, OHIO, RAPID TRANSIT. During 1919 a report made to the Rapid Transit Committee of the city of Cleveland by Parsons &

Klapp, consulting engineers, of New York City, recommended a system of group subways for street cars in the centre of the city in order to deal with the transfer traffic now using the public square and relieve the track and street congestion downtown, and also to create the nucleus of a future rapid transit system. This report deals with the question of complete transit facilities, which were not considered possible under prevailing financial conditions. While a future rapid transit system was outlined, yet the consulting engineers recommended the improvement of the existing street car facilities, and particularly the maintenance and increase by suitable subsurface routes free from vehicle and pedestrian interference. They also recommend the unification of street cars and rapid transit lines into a single system, and the elimination of interference by vehicle and pedestrian traffic with the street car lines by placing the latter underground in subways or looping back a large portion of the cars further from the city's centre.

LONDON. Here as elsewhere improvements and extensions of the electric underground railways of London, England, were found necessary by the several companies, and the plans adopted to relieve the situation were estimated to cost about \$25,000,000. It was proposed to connect the Central London line to the suburban system of the London & Southwestern Ry. to open up an alternative route from the Hammersmith district into the city, and also extend it parallel with the Great Western Ry. as far as the suburban district of Ealing. It was proposed to rebuild entirely the old City & South London line, the first and smallest of the "tube" lines, enlarging its tunnel to the same section as the other lines so as to accommodate the same rolling stock and permit the running of through trains. This line was to be connected with the Hampstead line for through traffic between the northern and southern districts of London.

MADRID. The first three miles of the Madrid subway was completed in November, and at the end of the year was operating from the northern part of the city to Puerta del Sol, the centre of the business district. In 1920 it was proposed to resume construction in order to carry the line to the station of the eastern and southern railways, Estación del Mediodía.

MARSEILLES. The Marseilles Municipal Council decided during 1919 to undertake the construction of an underground railway in the city, in order to relieve the ever-increasing congestion of the streets. This scheme had been under consideration for a number of years and the end of the war made possible the decision.

RAPPAPORT, JEROME. See MUSIC, *Artists, Instrumentalists*.

RAYLEIGH, JOHN WILLIAM STRUTT, Third Baron. Celebrated British physicist, died in the first week of August. He was born on Nov. 12, 1842, educated at Trinity College, Cambridge, where he became Senior Wrangler in mathematics in 1865, a fellow in 1866, professor of experimental physics, 1879-84. From 1887-1905 he was professor of natural philosophy in the Royal Institution, London. The work for which he was most famous was a discovery in connection with Sir William Ramsay of an element in the atmosphere subsequently called argon, for which discovery he received the Nobel prize in 1904. The two scientists had noticed that the

azote extracted from air was slightly greater in density than that formed by other mechanical processes, and then by a series of experiments they succeeded in isolating a gas with an unknown atomic weight which gave a new ray in the spectroscopic. Subsequent investigations along these lines led to the discovery by these and other investigators of three other new elements of the atmosphere, neon, krypton, and xenon. He also made important studies in electricity, magnetism, capillarity, the viscosity of liquids, and other branches of physics, especially in acoustics, all of which were characterized by great accuracy. He was president of the Royal Society from 1905-1908, and he was elected foreign associate of the American National Academy of Sciences in 1910. In 1905 he became a member of the Privy Council, and in 1908, chancellor of Cambridge University. In addition to many valuable papers in all departments of physics, he was author of a classic on acoustics, *Theory of Sound* (two volumes, 1877-8, 1894-96). His works were published in a collected edition of five volumes in London, 1899-1912. He left one son, Robert John Strutt Rayleigh, professor of physics in Kensington.

READE, PHILIP. American brigadier general, died at Boston, Mass., October 21st. He was born at Lowell, Mass., Oct. 13, 1844. He served as a young man in the eighteenth army corps during the Civil War; studied at West Point, (1864-5); was second lieutenant of the Third Infantry in 1867; first lieutenant 1878; and captain in 1889. On May 12, 1898, he became inspector-general of volunteers, and was honorably discharged from the volunteer service on June 30, 1901. He returned to the regular service and was retired in 1908 with the rank of brigadier-general. Besides service in the Civil War, he was engaged in the Spanish-American War in Cuba, and the Philippine Islands. He drew attention in the early part of his service for his great skill as a signal man. He was historian of the Massachusetts, Wisconsin, and Illinois Societies of Colonial Wars, and was a member of various other important social organizations.

REAVIS BILL FOR DEPARTMENT OF PUBLIC WORKS. See **ENGINEERING**.

RECLAMATION. The most conspicuous activity in land reclamation in 1919 was not in actual work but in propaganda for reclamation work as a means of providing work for discharged soldiers and sailors, and providing also opportunities for such men to acquire farms. Considerable legislation along this line was enacted but little work was done. While more than a year has passed since the close of the world war general readjustment has occupied the time of most countries and little reclamation work has been done.

IRRIGATION. United States. There was a very small amount of new irrigation construction in the United States in 1919, no large projects being constructed in any state, and very few large extensions of existing projects.

The United States Reclamation Service reports the total receipts from the sale of public lands from the passage of the act (1902) to June 30, 1919, as \$97,426,574.56 and from the sale of town lots as \$449,516.42. To this has been added a special appropriation of \$1,000,000 for the Rio Grande project and a loan of \$20,000,000, making a total fund for construction of

\$118,876,090.98. The gross expenditures for construction to June 30, 1919, were \$132,276,620.30. The total area in the projects is about 3,200,000 to 1,600,000 acres (just one-half) of which the Service was ready to supply water in 1919. Of the latter area about 1,120,000 acres was irrigated in 1919, leaving unused approximately 500,000 acres for which water was ready. The annual report of the Reclamation Service shows that investigations of many new projects are under way, but no new projects were undertaken in 1919.

The legislatures of all the States in which irrigation is extensively practiced were in session in 1919, and all passed more or less legislation affecting irrigation. The more important enactments were as follows: Arizona enacted a new water code modeled after that of Oregon. It created the office of State Water Commissioner and provided for public control of the water resources of the State. One hundred thousand dollars was appropriated to cooperate with the U. S. Reclamation Service in investigating new irrigation projects in the State. California amended its irrigation district law in several particulars, the most important being a provision decreasing the vote required to organize a district, thus making the organization easier. Colorado provided for a commission to study its irrigation district laws and investigate existing districts for the purpose of revising the laws and rehabilitating districts that have not succeeded. Idaho reorganized its whole system of water administration, by abolishing the office of State engineer and creating a department of reclamation, with a commissioner of reclamation and a director of water resources. The Idaho irrigation district law was amended in several details. Kansas provided for a commissioner of irrigation in its State board of agriculture, and appropriated funds to enable that official to gather data regarding existing irrigation plants. Funds were made available for the preparation of a systematic general plan for the development of the State's water resources. Securities issued to finance irrigation construction were made subject to the State's blue sky laws. Nevada enacted an irrigation district law. New Mexico repealed its irrigation district law and enacted two new ones, one a general law and the other providing for cooperation with the U. S. Reclamation Service. New Mexico provided also for an investigation of the State's water resources. Utah revised its irrigation laws in an attempt to make effective its provisions for the defining of rights to water. It also made an appropriation for the sinking of wells for irrigation. This is considered very important for the reason that a large part of the State must be supplied with water from wells if at all. Washington appropriated \$100,000 for the survey of a Columbia River project involving 2,000,000 acres. The Supreme Court of Texas declared unconstitutional that part of the State's water laws which gave to the State board of water engineers the power to determine the relative rights of claimants to water, on the ground that that is a judicial function which belongs to the courts. This review shows in general an extension of public control over water resources, with a backward step in Texas, where the defining of rights is thrown back into the courts. The question of jurisdiction over interstate streams, which involves to a considerable degree

the existing systems of State control of water resources, is raised in two cases pending in the Supreme Court of the United States, one involving Colorado and Wyoming, and the other Colorado and Nebraska. A third case, involving Colorado and Nebraska, is pending in the United States District Court in Colorado, and other interstate controversies are awaiting the decision of the cases referred to.

FOREIGN COUNTRIES. In Canada the Dominion government is making a thorough investigation of the irrigation possibilities in Alberta. The projects under study include a large one in the vicinity of Lethbridge, affecting more than 500,000 acres, one near Medicine Hat, and one proposing to take water from the North Saskatchewan River for irrigating land in eastern Alberta and western Saskatchewan. It is proposed to organize some of these projects under the Alberta irrigation district law.

In Mexico conditions are still so unsettled that there is practically no new irrigation development. In the Yaqui River Valley Americans are attempting to grow rice with some success.

In his message to Congress, delivered Sept. 19, 1919, the President of Brazil urged a reclamation scheme in Northeastern Brazil, affecting about 2,500,000 acres. He asked for an annual appropriation of \$11,000,000, with a total not to exceed \$55,000,000, to be expended for storage works, canals, etc. He advocated also the creation of a reclamation fund to be made up from a percentage of the income of the general government for a period of years, a percentage of the revenues of the states for the same period, the revenues from the works built, and gifts. The proposed plan includes control over the land and the manner in which it is cultivated to be exercised by the general government.

In Egypt plans for storage on the headwaters of the Nile and the reclamation of land in the Sudan are being discussed, and are arousing controversy as to the possibility of the depletion of the water supply for Egypt by the development proposed in the Sudan.

Before the beginning of the world war, ambitious plans for the construction of irrigation works in Mesopotamia were made, and construction was begun. A large dam was built near ancient Babylon, and canals for distributing water were begun. Little has been done since, and the canals built have filled with sand to a considerable extent. The war, however, resulted in improved navigation as well as land transportation by rail and highways, and it is expected that this will help in the successful utilization of the works already built, and in the extension of these works. The British military authorities are establishing model farms and dairies, and restoring and using canals in that connection.

In Australia the most important new development is the interstate project for storage on the upper Murray River, between Victoria and New South Wales. It is proposed to build a reservoir having a capacity of 1,000,000 acre-feet, which is to supply water to 1,000,000 acres. It will help, also, to control floods and maintain navigation in the river. The estimated cost is 4,500,000 pounds, and it is estimated that the work will extend over seven years.

In India many large projects are being urged, and it is expected that construction on some of

these will begin soon. In the aggregate, five of these schemes call for the expenditure of about \$110,000,000, to provide water for about 6,000,000 acres.

The Japanese are proposing large irrigation works for the growing of rice in Korea. The Japanese governor-general in Chosen estimates that 2,500,000 acres can be reclaimed for rice growing at an expense of about \$500,000,000.

DRAINAGE: United States. The year 1919 witnessed very little reclamation of swampy lands by drainage. There was, however, considerable activity in the drainage of irrigated lands. This work affects principally lands that have been farmed under irrigation which have become too wet to cultivate because of the rise of ground water as a result of irrigation. This work, it is evident, protects existing farms, instead of supplying new land for settlement. The financing of reclamation work is its most difficult phase, and in drainage reclamation the organization of drainage districts is the almost universal method of financing. During 1919 there was a great deal of legislation dealing with this subject. Georgia, Idaho, Indiana, Iowa, Kansas, Nevada, New Mexico, Utah, and Washington amended their laws in various details. California enacted a new drainage district law, in addition to several already on its statute books. Indiana created a department of conservation, that is charged with compiling and disseminating information and making recommendations regarding the natural resources of the State and their conservation by drainage, reclamation and flood control. Kentucky enacted a new drainage district law. Massachusetts created a State drainage board, with power to make investigation and surveys, and form drainage districts. Minnesota created a Department of Drainage and Waters, having the power of its former State Drainage Commission, and also power to make drainage investigations, measure streams, regulate drainage engineers, and survey drainage districts and establish their boundaries. North Dakota created a Flood Control Commission with power to make surveys and plans for flood control on streams within the State and boundary streams. Boards of county commissioners were given power to form and manage drainage districts and to issue county bonds for the purpose of raising funds. In Oregon drainage districts were given authority to build irrigation works where needed.

Several important judicial decisions relating to drainage were handed down by Federal and State courts. The United States Supreme Court upheld the constitutionality of the Ohio conservancy act (248 U. S. 35). The Supreme Court of Florida held unconstitutional the drainage district law of that State (80 Southern, 300); and similar action was taken by the Supreme Court of Virginia as to the district law of that State (97 S. E., 362). A most important decision that will probably lead to changes in drainage laws throughout the West was rendered by the Supreme Court of Idaho (182 Pac., 847). This decision upholds the law of Idaho making "high lands" subject to assessment for the cost of drainage of low lands that are injured by water from the high lands. "High lands" are held to include all lands and canals that contribute to the water-logging of the low lands. Heretofore the prevailing rule in the West has been that the owners of canals were

not responsible for damage resulting from seepage unless negligence in their operation were proven. The Idaho court says that this immunity from responsibility has been in the nature of a subsidy to irrigation companies, but that the legislature has the power to abolish this immunity whenever it sees fit to do so. The result will be the shifting of the burden of draining wet lands from the owners of the wet lands to the owners of the lands and canals from which the damaging water escapes.

FOREIGN COUNTRIES. In Spain plans have been prepared for the drainage of the marshes along the left bank of the Guadalquivir River. The project includes about 93,000 acres. The land is being diked, and will be provided with interior drainage. It is also necessary to provide for washing out salts, and for irrigations. The land is part in public ownership and part private, and the cost will be divided between the government and the land owners. It is proposed to use this land for growing cotton. In northern Italy much of the land known as the "Little Holland of Italy," that had been diked and drained before the world war, was flooded. The river banks were broken by bombardments, and by both the Italians and the Austrians to retard the movements of their enemies. In this way about 125,000 acres of producing land was flooded. Since the close of the war the damages are being repaired and the land is being restored to cultivation. The land is used for grain, fruit, and live-stock. The Government of New Zealand is proposing large drainage enterprises as a part of its soldier settlement work. Two projects on the North Island, both within 100 miles of Auckland, include about 125,000 acres.

SOLDIER SETTLEMENT; United States. Many bills have been introduced in Congress with a view to providing work and homes for returned soldiers, sailors, and marines. The friends of such legislation have attempted to unite on a single bill, House Roll 487, known as the Mondell Bill, and embodying the ideas of the Secretary of the Interior. The purpose of the bill is "to provide employment and rural homes for those who have served with the military or naval forces of the United States during the war between the United States and Germany" and former American citizens who served with the Allies. The bill places the work in the hands of the Secretary of the Interior, and authorizes appropriations up to \$500,000,000.

The essential features of the plan are as follows: The lands are to be sold at prices that will repay the cost of reclamation; settlers may be "selected," and preference is to be given to those who have been employed in the development of the projects; applicants must make a first payment of 5 per cent of the purchase price, the balance to be paid in amortizing payments extending over a period to be fixed by the Secretary of the Interior not exceeding 40 years, with interest at 4 per cent; advances may be made for improvements and live-stock; the Secretary of the Interior may make regulations regarding residence and cultivation.

The bill contemplates coöperation with the States, and many of the States have enacted laws looking to such coöperation. Some have merely appointed commissioners to investigate while others have made appropriations, some conditional on the passage of similar legislation by

Congress, and others making the funds available without Federal action. The States which have passed some such legislation are: Alabama, Arizona, California, Colorado, Delaware, Florida, Idaho, Maine, Missouri, Montana, Nevada, New Mexico, Oregon, South Carolina, South Dakota, Tennessee, Texas, Utah, Vermont, Washington, and Wyoming.

California is the only State which has done any actual work in this line, and its settlements are not restricted to soldiers. California has one settlement in operation at Durham, and has made an appropriation of \$1,000,000 for additional work, and provided for submitting to the vote of the people of the State a bond issue of \$10,000,000 for similar work. A proposed bond issue of \$2,647,000 for settlement purposes was defeated by popular vote in Oregon. In his message to Congress at the beginning of the present session (December, 1919), the President urged upon Congress the enactment of legislation of the class described.

FOREIGN COUNTRIES. Practically all of the British dependencies have provided for aid to discharged soldiers in securing rural homes, but this legislation antedates 1919, and consequently is not reviewed here. The South American Republics are discussing land settlement along the lines urged in the United States, but have not as yet accomplished anything. The European countries have generally provided for such aid through existing societies, rather than through direct governmental channels.

RECONSTRUCTION. See AGRICULTURE; INDUSTRIAL RECONSTRUCTION.

RED CROSS, AMERICAN. A volunteer organization for the care of the army and navy of the United States, although during the war it administered relief on a large scale to the soldiers and families, and the civilian populations of allied countries. The administration is controlled by 14 divisional headquarters, one of which covers work in territorial, insular, and foreign places. In 1919 there were 3724 Chapters with 17,186 branches, embracing a membership of 20,000,000 adults and 11,000,000 junior members.

On July 1, 1917, President Wilson appointed the American Red Cross War Council to manage the affairs of the Red Cross for the government. On Mar. 1, 1919, this War Council was dissolved, and authority and responsibility were turned back to the Executive Committee with Dr. Livingston Farrand as chairman and several of the War Council as new members. At Washington Dr. Frederick P. Keppel was made Director of Foreign Operations. Various foreign commissions were successively closed out and in May a Committee on Liquidation began to make reducing adjustments, to sell off saleable supplies no longer needed in relief operations. Col. Robert E. Olds was placed in charge of the activities of the Red Cross throughout Europe. Late in 1919 there were still 1100 American Red Cross workers in Europe. In the middle of the year Congress authorized the Secretary of War to transfer to the American Red Cross such medical and surgical supplies and dietary foodstuffs in Europe as should not be needed by the army.

A programme has been formed for work at home contemplating the establishment of health centres in communities without adequate facili-

ties of this sort, extension of the nursing resources of the country, extension of Home Service that was of vital assistance to service men and their families in the war, and more extended Junior Red Cross activities. That the American people approved this plan was evidenced by the Third Red Cross Roll Call on November 2d, when 10,000,000 adult Americans renewed their membership.

Following are certain round figures covering American Red Cross participation in the war, as revealed by the War Council's report:

Contributions received (material and money)	\$400,000,000
Red Cross members:	
Adults, 20,000,000	
Children, 11,000,000	81,000,000
Red Cross workers	8,100,000
Relief articles produced by volunteer workers	371,577,000
Families of soldiers aided by home service in United States	500,000
Refreshments served by canteen workers in United States	40,000,000
Nurses enrolled for service with army, navy or Red Cross	23,822
Kind of comfort articles distributed to soldiers and sailors in U. S.	2,700
Knitted articles given to soldiers and sailors in U. S.	10,900,000
Tons of relief supplies shipped overseas ..	101,000
Foreign countries in which Red Cross operated	25
Patient days in Red Cross hospitals in France	1,155,000
French hospitals given material aid	3,780
Splints supplied for American soldiers ..	294,000
Gallons of nitrous oxide and oxygen furnished French hospitals	4,340,000
Men served by Red Cross canteens in France	15,376,000
Refugees aided in France	1,726,000
American convalescent soldiers attending Red Cross movies in France	8,110,000
Soldiers carried by Red Cross ambulances in Italy	148,000
Children cared for by Red Cross in Italy ..	155,000

There remained on Feb. 28, 1919, a balance of \$127,000,000 of which \$41,000,000 was cash and \$53,000,000 worth of supplies held by national headquarters and \$33,000,000 in the hands of the Chapters. This will be used to carry on the work of reconstruction. In expenditure the ratio of "management" to "relief," the report shows, was 18 $\frac{1}{10}$ per cent.

The following resume shows how American Red Cross efforts continued abroad in 1919 among populations left helpless by the war:

ALBANIA. A personnel of 60 conducted hospitals, dispensaries, dental stations, child welfare, civic hygiene work and general relief from headquarters at Tirana and branch stations at various points throughout the country.

BELGIUM. Commission to that country brought its work to a close as rapidly as possible, assisting in the meantime large numbers of refugees returning to find their homes shattered and helping to lay the foundation of self-rehabilitation.

BOSNIA-HERZEGOVINA. A small unit was sent into this Balkan country in the early summer of 1919 to cooperate with the American Relief Administration in the work of child-feeding, later branching out to provide equipment and medical and surgical supplies in the hospitals.

CZECHO-SLOVAKIA. Unit at one time numbering 40 persons, to cooperate with the American Relief Administration in saving the lives of children who had been without proper food through-

out the conflict. The work gradually spread until it included the distribution of clothing to the needy, supplementary work in the hospitals, nurses' training and general relief for the Ukrainian refugees. The Red Cross also provided mountain vacations for 500 undernourished children.

FRANCE. As long as American troops remained in France in large numbers, the Red Cross maintained its canteens, hospitals and hotels for the troops, recreation for the sick and disabled, Home Service and various other activities for the veterans. It carried on also its work for French orphans, mutilated French soldiers, refugees in the devastated regions and victims of disease, particularly tuberculosis.

GREAT BRITAIN. The work of the American Red Cross in England, which had grown to such proportions during the war that at one time 2000 workers were engaged in it, was largely with and for American troops passing through and was curtailed as rapidly as the military and naval men were brought home.

GREECE. The work in Greece was largely devoted to care of children in the devastated areas of western and eastern Macedonia, refugee repatriation in Macedonia and the Greek Islands, assisting civil and military hospitals, combating typhus and other epidemics, child welfare, improvement of agricultural conditions, manufacture of artificial limbs and similar activities. About 50,000 refugees were cared for in eastern Macedonia alone.

GERMANY. In February the American Red Cross sent to Germany a commission to assist the American Relief Administration in the securing of the hundreds of thousands of Allied prisoners in the 75 prison camps and aid in their repatriation. In its work the Red Cross handled for the Inter-Allied Board 7360 tons of food, distributed 600,000 articles of clothing and provided several tons of medical and surgical goods for sick and wounded. The work ended in August but covered the most critical period for the prisoners, particularly the large number of Russians.

ITALY. During the first half of the year the Red Cross gradually contracted the enormous work of civilian and military relief by which it had bolstered Italian morale during the critical days of the war and finished up the year by conducting a limited programme of anti-tuberculosis work, nurses' training and home service work, in addition to which, however, it was able to perform notable emergency disaster relief in the Mugello earthquake, providing two train loads of barracks and tents for the homeless, food and clothing and personal assistance.

MONTENEGRO. Fifty workers engaged in relief work in Montenegro where the need for medical assistance particularly was very great. Four hospitals were operated at central points, a number of dispensaries, canteens and dental stations and American methods of health improvement and sanitation were introduced.

NORTH RUSSIA. In addition to providing for the comfort and welfare of American troops during their occupation of Archangel, the unit provided more than 2,000,000 hot lunches to school children, assisted needy civilians, contributed to hospitals and asylums and aided refugees far into the frozen wastes around the city, building up a local organization of relief which together with surplus relief supplies were turned over

to the government when the troops withdrew.

POLAND. The largest American Red Cross commission in Europe during the year was that which went into Poland to begin the fight against typhus that threatened to spread to western Europe, help succor the million refugees and the children whose plight was worse than that of any other European country. More than 100 workers were attached to this commission and several thousand tons of clothing and medicines, hospital equipment and supplementary foodstuffs were shipped into the country by the Red Cross. The Commission also cooperated with the government in coping with public health problems, particularly rehabilitation of the water supply.

RUMANIA. The Red Cross resumed operations in Rumania as soon after the armistice as a commission could be landed in that country. To deal with the terrible conditions left by the invaders the commission established relief units in all important towns and cities in the needy areas where it operated canteens, distributed food and clothing and provided medical attention and supplies, to fight the epidemics that raged. Thousands of lives were saved and the groundwork for self-help laid for the population.

SERBIA. The large Red Cross Commission to Serbia found medical relief the most important work during the year, there being only about a hundred native doctors to care for 4,000,000 population. At one time the commission had 30 doctors, 50 nurses, and five dentists working at various points.

SOUTH RUSSIA. Late in the summer of 1919 the Red Cross sent to the Russian Caucasus a commission taking nearly \$2,000,000 worth of supplies to carry on relief work in the four little republics in the rear of General Denikin's anti-bolshevik army for the large number of refugees.

SWITZERLAND. The Red Cross Commission to Switzerland, which had supplied food, clothing and comforts that American soldiers and sailors held in German prison camps credited with being all that stood between them and starvation, liquidated its work as rapidly as possible by assisting in the repatriation of these men and other allied captives.

SIBERIA. The work in Siberia grew to unprecedented proportions during the year, there being 600 workers in the field when the fall campaign against typhus, cholera and other epidemics got under way. In addition to caring for the American troops who helped hold the Trans-Siberian railway open, the Commission carried on relief work over a line stretching from Vladivostok to beyond Omsk until that city fell to the Bolsheviks. The work included succoring refugees, operating and aiding hospitals and anti-typhus trains, rescuing the lost Petrograd children who were wandering aimlessly in the Urals, and helping the government establish health agencies. A unit of doctors and nurses from the commission also helped wipe out the cholera epidemic that threatened Harbin.

The Red Cross took a leading part in the formation of the League of Red Cross Societies, which, with headquarters at Geneva and with the national Red Cross organizations of the United States, Great Britain, France, Italy and Japan as founder members, has undertaken a worldwide fight for the prevention of disease

and promotion of health. The headquarters of the Red Cross are at Washington, D. C.

REDWOOD, Sir BOVERTON. British chemist and engineer, died in London, England, January 4. He was especially known as a petroleum expert, his publications on the subject being of great importance. He was born in London, England, Apr. 26, 1846. He visited the chief centres of petroleum distribution in Europe, United States and Canada and gave important evidence before parliamentary committees. He was president of the International jury for lighting appliances and materials at the Brussels Exhibition in 1897 and he served on a large number of juries, committees, boards of research, etc., pertaining to his subject. In the latter part of his life he was on the war committees of the Board of Trade, Ministry of Munitions, and Admiralty Board of Invention and Research. The list of his publications includes the following: *Cantor Lectures on Petroleum and its Products*, (1886); *Petroleum, its Production and Use*, (1887); Report (with Sir Frederick Abel) on Accidents with Mineral Oil Lamps, (1890); also on the Transport of Petroleum through the Suez Canal, (1892); articles on "Petroleum" in Professor Thorpe's *Dictionary of Applied Chemistry*, (1893); *The Transport of Petroleum in Bulk* (Telford Premium, 1894); articles on the Petroleum Industry, and Lamps in Chemical Technology, (1895); *A Treatise on Petroleum* (2 vols., 1896; 3d ed. (3 vols., 1913); *The Detection and Estimation of Inflammable Gases and Vapors in the Air*, (1896, with Professor Clowes); *Handbook on Petroleum* (with Capt. J. H. Thomson, 1901; 2d ed., 1906; 3d ed., with Maj. A. Cooper-Key, 1913); *The Petroleum Lamp* (with Capt. J. H. Thomson, 1902); "Petroleum," in *Ency. Brit.* (supplement, 1902), and *Ency. Brit.* (11th ed., 1911); *Petroleum Technologist's Pocket-Book* (with Arthur W. Eastlake, 1915).

REED, VERNER ZEVALA. Author and capitalist, died at Coronado, Cal., April 20. He was born in Richland County, Ohio, Oct. 13, 1863, and engaged in banking, mining, and other enterprises in the Western States. He passed nearly 15 years abroad. In this country he studied Indian customs, especially among the Utes and Pueblos. He was one of the first to make an automobile tour to the Sahara Desert; was a lecturer especially on international political subjects, and contributed to many periodicals. He also wrote the following books: *Lo-To-Kah* (1897); *Tales of the Sunland* (1897); *Adobe Land Stories* (1899); *The Soul of Paris* (1913).

REED COLLEGE. A non-sectarian co-educational institution, at Portland, Ore. The enrollment as of November, 1919, was as follows: men, 146, women, 139, total, 285. There were 22 members in the faculty. Productive funds amount to \$1,674,534. The library contains 15,216 volumes, and 1925 bound government documents. The President, William Trufant Foster, tendered his resignation to take effect Jan. 1, 1920.

REFORMED CHURCH IN AMERICA. (DUTCH REFORMED CHURCH.) The count made by the Federal Census Bureau as of Jan. 1, 1917, gives the following statistics, the latest available: Ministers, 756; organizations, 708; members, 144,166; Sunday schools, 790; Sunday school officers and teachers, 12,716; scholars, 122,111. There are four particular synods, and

Armenia, Russia, Esthonia, Latvia, Lithuania, and Finland, totaling about \$89,000,000. The remaining 11 per cent was expended in direct charity. Of the work for which no reimbursement in cash or credit was asked, by all means the most important was the work of the Children's Relief Bureau, by which in 17 countries in Europe gratuitous rations were given daily to 3,000,000 under-nourished children. This work was organized on a scientific nutrition basis and was an important factor in the maintenance of health and morale. In addition to contributions to Children's Relief, the American Relief Administration paid approximately \$550,000 for freight and expenditures in connection with the distribution of old clothing contributed by the American Red Cross and the Commission for Relief in Belgium. Approximately \$500,000 was also spent on freight in transporting United States army bacon from France to Poland, Czecho-Slovakia, and Esthonia. All relief supplies purchased by the American Relief Administration were of American origin.

Connected with the work of food relief was the rehabilitation of the communication and in a lesser degree of the exchange systems of central Europe. Through the organization of the American Relief Administration, service was also rendered in the increasing of coal production and its proper distribution to points of political and military stress. The funds for American relief in Europe lasted until July 1st. As the main purpose of the Administration was to relieve the situation until the harvest of 1919, the United States Relief Administration withdrew in September as an official organization of the government. Certain activities of the Administration, notably the Children's Relief for under-nourished and debilitated children continued into 1920 in a private capacity under the name of the American Relief Administration's European Children's Fund. This fund was supported largely by contributions from the nationals in America of distressed European peoples. The work of the American Relief Administration is also continued in certain points of Europe in the operations of technical commissions of experts attached to the new governments, to render aid in the reconstruction of transportation and other economic systems. In September the work of the American Relief Administration in Armenia was taken over by the organization headed by Col. William N. Haskell, Allied High Commissioner in Armenia. This organization operated under the direction of Herbert Hoover.

THE NEAR EAST. The situation in the Near East was characterized by Herbert Hoover as "the most desperate in the world." This situation was partly due to the fact that during the war the Red Cross did not maintain any relief system in Armenia, Syria, the Russian Caucasus, Mesopotamia, Egypt, Palestine, and Macedonia. Mr. R. L. Fowle, who during the last few years administered the financial affairs of the Armenian and Syrian Relief Commission (now the Near East Relief), described the conditions there as being generally chaotic, intense suffering prevailing practically everywhere. In Serbia 1,000,000 faced destitution. Lack of food in this cold mountainous country made it absolutely necessary that additional supplies of clothing be shipped there, if thousands were not to be swept away by disease. Following the armistice the Red Cross attempted to alleviate the condition

of the starving, destitute, and shelterless refugees returning to the land of their former homes. However by July, the Red Cross withdrew from work in Aleppo, Aintab, and other countries north of Jerusalem in Asia Minor, and turned over its supplies to the American Committee for Armenian and Syrian Relief which later operated as the Near East Relief under the terms of a charter granted by Congress and approved Aug. 6, 1919. In addition the Red Cross gave \$6,000,000 to the Near East Relief Committee to carry on the work. "It was imperative that the Near East Relief take over the work of the Red Cross in this region because the Christian symbolism of its name had proven objectionable to the Mohammedans whose coöperation was necessary to carry on the work." By the end of the year \$32,324,516 had been expended in relief work in Armenia, Cilicia, Anatolia, Syria, Palestine, Macedonia, Thrace, Mesopotamia, and Persia. By that time 168 orphanages had been established and were in operation. Over 7000 tons of flour were distributed per month. In addition there were 37 hospitals, with 88,728 clinic attendants each month; 14 rescue homes, where women released from bondage were temporarily cared for; and 82,291 persons were employed in industries maintained by the Relief. Reports from representatives in the Near East indicate that there are 1,200,000 destitute adults; 250,000 homeless children, and 100,000 women who on being released from bondage, will perish unless provision is made for their care by some organization supplied with the necessary funds for relief work. Col. William N. Haskell, appointed on July 5th, representative of the United States, Great Britain, France, and Italy, in Armenia and the Caucasus, was in charge of all operations and expenditures for the Near East Relief. Cablegrams received from him by the Committee, appealing for help immediately, revealed the desperation of the situation. In August, Maj-Gen. James G. Harbord, formerly General Pershing's Chief of Staff, was sent to Asia Minor and Armenia by the United States government to investigate the state of affairs there and to report on the means of relieving the situation, his mission in no way conflicting with Colonel Haskell's.

JEWISH RELIEF. According to reports received by Felix M. Warburg, chairman of the Joint Distribution Committee of the American Fund for Jewish War Sufferers, the distress and suffering among Jews in Austria, Poland, and Siberia were greater than that experienced during the period of the war. Relief work was carried on through the Joint Distribution Committee in these countries and also in Syria, Palestine, and Egypt. During the past year the Committee in conjunction with the Polish National Department, Relief Section, sent a cargo of food, clothing, and medical supplies valued at \$2,000,000 to Poland, each committee bearing an equal share in the expense. In coöperation with the Near East Relief, clothing, food, and medicine were sent to the Near East, part of the expense (\$300,000) being born by the Joint Distribution Committee. It was understood that the relief was to be administered without discrimination as to Jews and non-Jews. Efforts were also made to send relief to 5,000,000 Jews who at the beginning of the war fled to Siberia and occupied the region extending along the Trans-Siberian Railroad from Omsk to Vladivostok.

tok. Lack of food, clothing, and adequate shelter caused these people to suffer severely. The funds disbursed by the Joint Distribution Committee included money collected by the American Relief Committee of which Louis D. Marshall was president; The Central Relief Committee, 51 Chambers Street, Harry Fischel, treasurer; and the People's Jewish Relief Committee. From January to November, 1919, the Joint Distribution Committee appropriated \$11,445,727 for use in welfare work. From its inception in 1914 to December, 1919, the Committee made appropriations amounting to \$25,086,198. The offices of the Committee are at 20 Exchange Place, New York City.

NATIONAL BUREAU OF INVESTIGATION. As a protection against fraudulent charities and appeals made by irresponsible persons, the War Chest Associations of Cleveland, Syracuse, Indianapolis, Columbus, Detroit, Rochester, Philadelphia, and Toledo organized the National Bureau of Investigation on Oct. 6, 1918, with headquarters at 1 Madison Avenue, New York City, Samuel Mather, president. The War Chest Associations contributed large sums to various relief organizations during the past year. For a brief description of their origin consult the preceding **YEAR BOOK**. The Bureau took over the supervision of war charities previously performed by the Charity Organization Society of New York and its investigations were approved by the War Department. Some of the standards required of an approved war charity were: an active board of directors; a necessary purpose; reasonable efficiency; no resort to the commission method of soliciting except during "drives"; no use of the "remit or return" method; no entertainment where expenses exceed 30 per cent of the gross proceeds; a complete audit of accounts; and an itemized budget. In January, Mr. N. F. Persons was sent abroad by the Bureau to observe the relief work of the numerous organizations whose operations have been supported by Americans, and to make a general survey of conditions in the various countries. In addition to the personal observations of Mr. Persons, reports were received from Barry C. Smith, Director of the Bureau, concerning conditions in France; and also from relief workers familiar with the situation existing in the Balkans and Poland. On May 10th, Mr. Persons resigned in order to engage in important work for the Red Cross League and Maj. James B. Ford succeeded him as Foreign Representative of the Bureau. No attempt was made to investigate the following organizations working abroad since they were already approved by the United States government: American Red Cross; Knights of Columbus; Young Men's Christian Association; American Library Association; Jewish Welfare Board; Salvation Army; Young Women's Christian Association; and War Camp Community Service. On the basis of its investigations the Bureau issued several "Bulletins of Approved War Activities Abroad." See also *Fraudulent Charities* under **RELIEF FOR WAR VICTIMS** in the previous **YEAR BOOK**.

OTHER FUNDS. In Italy important relief work was carried on through the American Free Milk and Relief for Italy, Inc., and the Italian War Relief Fund. Altogether there were about 1,000,000 children in Italy who had been made orphans through the war and the influenza epidemic. It was necessary that these children be provided

with milk in some form and that their education be not totally neglected. The American Free Milk Relief sought to relieve the serious scarcity of milk in Italy by shipping milk in powder form to that country. It had headquarters at the Vanderbilt Hotel, Walter Meacham treasurer, and it had collected \$55,800 by November. The Italian War Relief Fund, through its contributions to the Italo-American Union and other relief organizations in Italy, endeavored to help children whose education had been jeopardized. Its headquarters were at 347 Madison Avenue, New York City, S. R. Bertron Secretary. By November it had received contributions amounting to \$130,116. In Serbia, provision for 40,000 of the 500,000 orphaned children has been undertaken by the Serbian Relief Committee. The expense of maintaining a child is 20 cents a day and the Committee's budget for the year totaled to about \$300,000. The Committee had received \$631,795 in contributions by November. Its headquarters were at 70 Fifth Avenue, New York City, Murray Coggeshall, treasurer. The Serbian Aid Fund started a campaign for clothing to be shipped to Serbia in February. This drive resulted in the collection and shipment of 130 tons of new and used clothing in addition to many cases of shoes, bedding, and hospital supplies, powdered milk and comfort kits. The organization's headquarters were at 1 Madison Avenue, New York City, Otto T. Bannard. It received contributions amounting to \$277,589.

Other important relief organizations, with their headquarters, treasurers, and collections to the end of 1919 were: Fatherless Children of France, 11 West Forty-Sixth Street, New York, Alexander J. Hemphill, \$1,001,327; American Committee for Devastated France, 16 East Thirty-Ninth Street, New York, Dr. A. C. Humphreys, \$1,231,508; Polish Victim's Relief Fund, 33 West Forty-Second Street, New York, Frank A. Vanderlip, \$1,222,114; Federal Council Commission on France and Belgium, 105 East Twenty-Second Street, New York, Alfred R. Kimball, \$626,596; American Committee for Training Maimed Soldiers, Hotel Biltmore, New York, Mrs. Edmund Baylies, \$453,270; Lafayette Fund, Hotel Vanderbilt, New York, Francis Roche, \$308,070; American Jugo-Slav Relief, 511 Fifth Avenue, New York, Walter Jennings, \$260,020; American Women's Hospitals, 637 Madison Avenue, New York, Dr. Sue Radcliffe, \$425,488; Duryea War Relief, 377 Fifth Avenue, New York, Charles E. Warren, \$253,408; Free Milk for France, 675 Fifth Avenue, New York, Henry E. Cooper, \$158,730; and the Stage Women's War Relief, 366 Fifth Avenue, New York, Mrs. Shelly Hull, \$293,903. See also **AMERICAN RED CROSS**; **KNIGHTS OF COLUMBUS**; **YOUNG MEN'S CHRISTIAN ASSOCIATION**; **SALVATION ARMY**; **AMERICAN LIBRARY ASSOCIATION**; **YOUNG WOMEN'S CHRISTIAN ASSOCIATION**; and **WAR CAMP COMMUNITY SERVICE**.

RELIGIOUS DENOMINATIONS. See articles on the respective denominations.

RENOIR, (PIERRE) AUGUSTE. French painter, died at Cagnes, France, December 3. He was one of the chief members of the Impressionist school and his work was mainly in the field of figures, portraits, and landscapes. He was born at Limoges, Feb. 25, 1841, the son of a tailor, and began as a painter on porcelain. Moving to Paris in the latter years of the Second Empire, he studied at the school of Beaux Arts

tuting a British protectorate under the administration of the British Africa Company, whose charter dates from Oct. 29, 1889. It is divided into Northern Rhodesia which lies to the north of the river Zambezi, and Southern Rhodesia which lies to the south of that river and comprises Mashonaland and Matabeleland. Northern Rhodesia comprises the two former provinces of Northeastern and Northwestern Rhodesia. Area, estimated at 291,000 square miles with a population estimated at from 877,000 to 884,000, of whom in 1916 only 2165 were Europeans. Seat of government, at Livingstone on the Zambezi River. The chief agricultural products are corn, cotton, wheat, tobacco, and fruits. There is abundant timber; rubber is produced; and gold, copper, lead, and zinc are worked. The exports include live animals, copper ore and other minerals, grain, flour, hides, etc. The imports exclusive of specie in 1918 were valued at £355,752; the exports at £343,338. Administrator in 1919, Sir L. A. Wallace. Southern Rhodesia has an area of about 149,000 square miles with an estimated population of about 770,000 (1918). In 1917 the European population was estimated at somewhat less than 30,000. There is an inadequate supply of timber but the country is well suited to agriculture. Cattle, sheep, and goats are raised, and among the crops, corn, which is the principal one, and tobacco. There are extensive mineral resources and rich gold veins. The output of gold in 1918 was valued at £2,632,000. Other minerals are silver, copper, chrome ore, coal, etc. The total output of the mines in 1917 was valued at £4,693,335. Imports (1918), £2,956,978; exports (exclusive of gold), £1,758,373. Administrator of Southern Rhodesia in 1919, Sir Drummond Chaplin.

RHODES SCHOLARS. See **UNIVERSITIES AND COLLEGES.**

RICE. The international rice situation in 1919 was marked by an acute shortage in the staple in the Far East and the consequent prohibition of rice export in several countries. British India, which ordinarily produces half the world's supply, prohibited the export of rice during the year. Burma restricted it, and Japan laid an embargo on the export from Formosa to meet in part her own requirements. It was estimated that for the year Japan was short over 30,000,000 bushels and as early as November, 1918, the price rose to \$3.50 per bushel and rice riots occurred in the country. During the summer of 1919 it was reported that by the control of exports and otherwise guarding the supply the crisis was passed but that the situation was yet far from normal.

According to provisional estimates by the International Institute of Agriculture, Rome, the Japanese crop of 1919 amounted to about 425,900,000 bushels or about 12 per cent less than the yield of 1918 and about 16 per cent under the five-year average for 1913-17. The Korean yield was approximately one-fifth of the Japanese, and the next largest yield of the countries reporting was produced by the United States.

As estimated by the Department of Agriculture, the rice crop of the United States amounted to 41,059,000 bushels produced on 1,089,000 acres or at the rate of 37.7 bushels per acre. In 1918 the production was 38,606,000 bushels, the area 1,118,550 acres, and the average yield 34.5 bushels per acre. The average farm price on December 1st was \$2.67 per bushel and on this

basis the total crop was worth \$109,613,000, the highest total value on record. The corresponding figures for 1918 were 191.8 cents per bushel and \$74,042,000 total value, and for the five-year period 1913-17, 112 cents and \$34,468,000 respectively.

RICE, CHARLES EDMUND. Judge, died at Wilkes-Barre, Pa., May 16. He was born at Fairfield, N. Y., Sept. 15, 1846, and graduated at Hamilton College in 1867 and at the Albany Law School in 1869. He practiced law at Wilkes-Barre. From 1879 to 1895 he was presiding judge of the 11th judicial district and he was presiding judge of the Superior Court of Pennsylvania from 1895 to 1916 when he retired.

RICE INSTITUTE. An institution of liberal and technical training, at Houston, Texas. It was founded by William Marsh Rice, and dedicated by him to the advancement of letters, science, and art, was incorporated in 1891, but was not opened till 1912. The enrollment for the fall of 1919 was 674, with 50 members in the faculty. The productive funds of the Institute are \$10,000,000. There are between 15,000 and 20,000 volumes in the library. President, Edgar Odell Lovett, Ph.D.

RICHARDS, CHARLES BRINKERHOFF. Mechanical engineer, died at New Haven, Conn., April 20. He was born at Brooklyn, N. Y., Dec. 23, 1833, and for 25 years held the Higgins professorship of mechanical engineers at Yale University, for the last nine years being professor emeritus. He was for many years the engineering superintendent of the Colt's Arms Co., at Hartford, Conn. He was the inventor in 1861 of the Richards indicator for steam engines and served often as consulting engineer for public buildings. In 1889 he was expert commissioner to the Paris Exposition. He was editor of the engineering and technical terms in Webster's *International Dictionary*.

RICHMOND, VIRGINIA. See **CITY PLANNING.**

RIEMANN, HUGO. Writer on music, died at Leipzig, July 11. He was born near Sondershausen; served in the Franco-German War and was afterwards a conductor and teacher of music until 1878 when he became a lecturer at the University of Leipzig. From 1881 to 1890 he was teacher at the Hamburg Conservatory and then went to the conservatory of Wiesbaden, whence he returned in 1895 as lecturer at the university. He was appointed professor in 1901 and in 1908 became director of the Collegium Musicum. Besides continuing in his other positions in Leipzig, he was made, in 1914, director of the newly-established *Forschungsinstitut für Musikwissenschaft*, and was a member of numerous foreign musical associations. His writings have been a most important factor in formulating the new science of musicology. He was a thorough investigator in all fields of musical research and published the *Musiklexikon* (1882) (8th ed., 1916) which has been translated into all languages and become a standard. His other writings include: *Handbuch der Harmonielehre* (1887); *Geschichte der Musiktheorie im 9-19 Jahrhundert* (1898); *Geschichte der Musik seit Beethoven* (1901); *Handbuch der Musikgeschichte* (4 vols., 1901-14); *Grosse Kompositionalehre* (3 vols., 1902-03).

RITCHIE, LADY ANNE ISABELLA. British writer, eldest daughter of William Makepeace died at Freshwater, England, February 26. She Thackeray, and widow of Sir Richmond Ritchie,

was born in 1837 and passed her early childhood in Paris, but in 1846 was brought back to England to live with her father in Kensington. She began to publish in 1863 when her first book, *The Story of Elizabeth*, appeared. This was followed by a number of books including six novels. She wrote largely on the subject of her reminiscences, and contributed much to Thackerayana. In 1877 she married her cousin, the late Sir Richmond Ritchie. One of the best known of her novels is *Old Kensington* (1873). The list of her other principal writings is as follows: *The Village on the Cliff* (1865); *To Esther, and other Sketches* (1869); *Toilers and Spinners* (1873); *Bluebeard's Keys* (1874); *Miss Angel* (1875); *Anne Evans* (1880); *Madame de Sévigné* (1881); *A Book of Sibyls* (1883); *Mrs. Dymond* (1885); introductions to editions of *Cranford*, *Our Village*, and *The Fairy Tales of Madame d'Aulnoy*; *Alfred Lord Tennyson and his Friends, Portraits and Reminiscences* (folio, 1893); *Chapters from some Memoirs* (1894); an edition of the works of W. M. Thackeray (1898); *Blackstock Papers* (1908).

ROADS AND PAVEMENTS. Highways rather than city pavements have been the centre of interest for several years past and were notably so in 1919. Automobile and heavy motor traffic, combined with deficient steam railway service, have increased the demand for smooth, hard, unyielding road surfaces from city to city and town to town and for the through routes for long distance motor travel and freight haulage. Coincidentally the surfacing of country highways has approached more and more nearly to that of city streets until it has become common to speak of paving country roads. For this purpose bituminous macadam and bituminous concrete, portland cement concrete, and brick are now commonly used for highway surfacing, the bituminous and the brick surfacing being placed on concrete foundations and particular care being taken, in all good work, to secure adequate drainage. For city streets, the same materials are used, together with sheet asphalt, granite block and, in some cases, creosoted wood block, the last two for heavy traffic. Under exceptional conditions, granite block and sheet asphalt have also been used in State highway work. In highway construction 1919 was a record year, as well as being the bright spot in the construction field as regards speedy resumption of work after the war and large volume of work as well. According to estimates made by Thomas H. MacDonald, chief of the United States Bureau of Public Roads, the total outlay for hard surfaced highways in the United States was \$138,000,000 in 1919, or \$2,000,000 more than the previous record figure of 1916. Mr. MacDonald estimated that \$633,000,000, or more than four times the amount spent in any previous year, would be available for road work in the United States in 1920, as follows:

For unfinished 1919 contracts.....	\$165,000,000
State and county taxes and Federal aid..	273,000,000
One-fifth State and county bond issues not previously available	50,000,000
One-third unexpended balance of State and county bond issues previously available	45,000,000
From new bond issues to be voted in fall of 1919 and spring of 1920.....	100,000,000
Total	\$633,000,000

To carry out this immense programme, Mr MacDonald stated, would require a heavy increase over 1919 in material supplies, shipping facilities, labor, and contractor's organization.

Shortage of railway transportation for road materials, as well as the high cost of materials and labor, and the inefficiency of the latter, were serious handicaps to road building in 1919. In some parts of the country stone and gravel for road making at any price were obtained with difficulty. To ease the situation, some of the State highway commissions took great pains to locate gravel pits and quarries and make their location known. Thus, before letting contracts for 115 miles of road improvements on the Dixie and Lincoln highways in Illinois, the highway commission prepared and distributed a map showing where gravel and stone could be had, together with the character of the highways over which road material would have to be hauled and the location of steam and electric railways, with stations and sidings.

Funds for highway construction come mostly from State and county bond issues and from the federal treasury, Congress having recently made millions available for federal aid to highway construction, on condition that the grants be duplicated by State or local funds. County road bond issues have run as high as \$5,000,000 to \$10,000,000 and State highway bond issues go much higher. One of the more notable State bond issues voted in 1919 was \$40,000,000 in California, carried 7 to 1, with every precinct voting yea, making the third State road bond issue in California within a few years and bringing the total authorized up to \$73,000,000. In Michigan, the voters approved a \$50,000,000 bond issue for constructing some 5000 miles of inter-county roads. The Oregon Legislature authorized \$10,000,000 of highway bonds, and the voters of Maine approved an \$8,000,000 issue, 5 to 1. The Kansas Legislature voted to submit to popular vote in 1920 a constitutional amendment to permit State road aid. The Alabama Legislature took like action, and Feb. 16, 1920, was afterwards set for a vote on a \$25,000,000 road bond issue. A bill authorizing \$30,000,000 of road bonds in Arizona was vetoed by the Governor. Texas voters, in November, killed a proposed constitutional amendment that would have authorized the Legislature to vote road bonds up to a total of \$75,000,000, but during the year more than 100 counties in Texas voted a total of some \$80,000,000 of road bonds, one county voting \$6,500,000. Of 68 Ohio counties voting on road appropriations late in 1919 only eight voted no, the 60 voting a total of nearly \$7,000,000. The Canadian Parliament voted \$20,000,000 of Dominion aid, to be made available within a period of five years, each province to receive \$80,000 a year, and the remainder to be apportioned between the provinces according to population, but the aid to any single project is not to exceed 40 per cent of its cost.

In striking contrast with the heavy bond issues of many other States the Iowa Legislature enacted a comprehensive highway improvement law in 1919 which for the most part contemplates the pay-as-you-go plan. State aid payments will be met from motor-vehicle license fees and the balance of the money required to match federal aid will come from county or township revenues or from assessments on the property benefited. A plan has been worked out under

Porto Rico, and the Philippines is added to the above total it will bring the number of Catholics resident under the American flag up to 26,332,650. There were 762 secular and 264 priests of religious orders serving as chaplains in the army and navy during the World War. In 28 States there is a Catholic population of 100,000 or over, the leaders being New York, 3,089,266; Pennsylvania, 1,867,000; Illinois, 1,481,799; Massachusetts, 1,406,845; Ohio, 866,715; New Jersey, 746,319; Michigan, 631,508; Louisiana, 618,869; Wisconsin, 592,233; California, 589,000; Missouri, 538,692; Connecticut, 523,795.

The Catholic periodicals and publications in the United States number 313, divided as to frequency of issue into: Quarterlies, 35; bi-monthlies, 7; monthlies, 105; semi-monthlies, 7; weeklies, 137; tri-weeklies, 2; bi-weeklies, 5; dailies, 8; irregular, 9. In addition to these there are 72 college publications. The languages used are English, French, German, Polish, Bohemian, Lithuanian, Spanish, Slovak, Slovenian, Croatian, Hungarian, Italian, Russian, Ruthenian, and Rumanian. The dailies are German 2; Polish 2; Bohemian, French, Lithuanian, and Slovenian 1 each; none in English; the nearest is a tri-weekly.

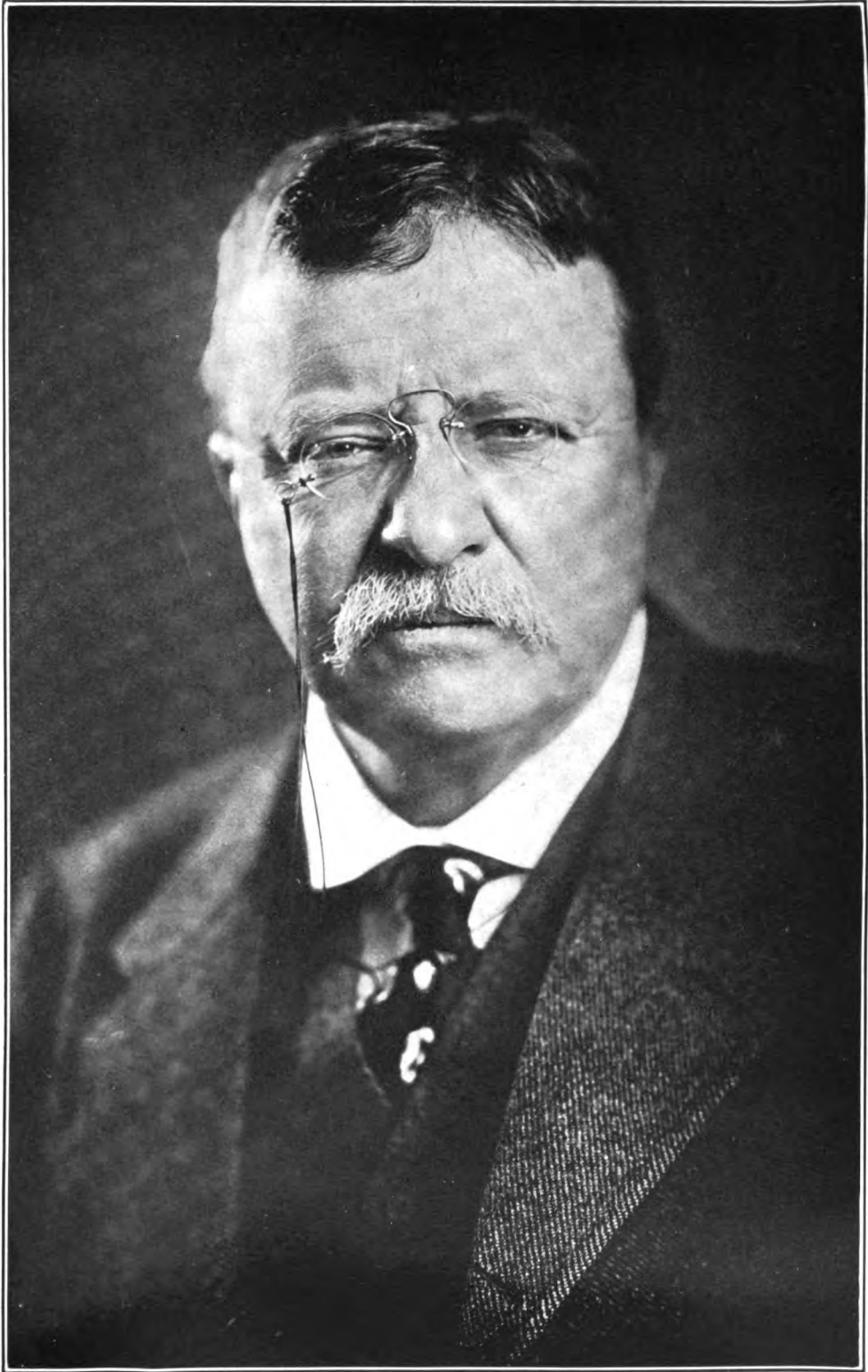
The solemn reading of the decrees confirming the miracles proposed for the Canonization of Joan of Arc took place at the Vatican on April 7th, and of those for the beatification of Louise de Marillac de Gras, founder of the Sisters of Charity, on March 10th. The ecclesiastical court at Quebec has directed the further promotion of the details for the beatification of Father Isaac Jogues, martyred by the Mohawk, N. Y., Indians.

ROOSEVELT, THEODORE. Ex-President of the United States, died at Oyster Bay, Long Island, N. Y., on the morning of January 6th. He had been ill for several weeks before. In fact he had not enjoyed sound health since his explorations in South America before the war, when he contracted a severe fever. He had latterly undergone more or less serious operations and in 1918 he was a sufferer from sciatica and inflammatory rheumatism, but continued his work in disregard of his health. Only a month before his death he was under treatment in a New York hospital, but returned to Oyster Bay at Christmas. Among the latest reports concerning him was a statement to the effect that he was preparing a definite declination to stand as candidate for the presidential nomination in 1920, and it was also said that he had intended soon after the peace was signed to pay a visit to France.

He was born in New York City, Oct. 27, 1858, a descendant of one of the Dutch families that had come to New York when it was still known as New Amsterdam. One of his ancestors on his mother's side had been a revolutionary governor of Georgia. He suffered from ill health during his youth; was educated at Harvard University, studied law at Columbia University, but did not practice. When a young man he showed more interest in natural history than in politics, and gave no especial promise of a conspicuous career. After leaving the university, however, he began to take an interest in politics, and in 1881 he was elected from New York City as a member of the Assembly, being the youngest representative in the Legislature at that time. He took his stand from the first against political

corruption and at the time of a judicial scandal in the State demanded the impeachment of the judges. Attention was drawn to him as a promising representative of the better element, and an advocate of political reform. He was elected delegate at large from New York State to the Republican National Convention of 1884, where he attempted to prevent the nomination of James G. Blaine. When power passed to that element of the party, with which he did not sympathize, he remained for a time out of politics. He passed two years upon a ranch in North Dakota, where his wholesome and active life not only restored him to health, but laid the foundation of his extraordinary physical vigor. In 1889 he was appointed civil service commissioner at Washington, having been prominent in the civil service reform movement and having secured the passage of the first civil service law in New York State. He administered the office with success, introducing many reforms, and while making many enemies won the esteem of the friends of honest government. His next important service was as police commissioner of New York City, an office that he administered with vigor and with success. In 1897 he was appointed Assistant-Secretary of the Navy under President McKinley. While in this office, realizing that intervention in Cuba was bound to come, he was active in the building up of the navy. He served, however, only a year, for the war with Spain drew him into the Cuban campaign. He was resolved to go to the front and to that end recruited a regiment of his own, known as the Rough Riders, consisting, among others, of men from the plains, cow boys, and many personal acquaintances and friends. His part in the war was creditable, but its importance from the military point of view was perhaps exaggerated, owing to certain dramatic aspects of it. He fought with his regiment at Las Guasimas and at San Juan Hill, and during the delay before the fall of Santiago in the summer of 1898, he drew much attention by the so-called "Roosevelt Round Robin," a protest published in the United States against certain vices in the army administration.

Then occurred his candidacy as governor of New York State. He was elected and assumed office at the beginning of 1899, but after six months was nominated as Vice-President, along with McKinley for the presidential election of 1900. This was taken as an indication that politicians of New York State believing he would carry out with embarrassing vigor a programme of administrative reform, decided to shelve him. The plan, if it was intended, failed, for after six months occurred the assassination of President McKinley and the succession of Mr. Roosevelt to the presidency. On all sides it was expected that Mr. Roosevelt who had shown himself impulsive and headstrong throughout his career would insist on having his way, and would quarrel with the party. On the other hand he proceeded cautiously and with tact. He did not sympathize with the indiscriminate attacks upon the corporations on the one hand or with the policy of leaving them entirely to their own devices on the other. Steering a middle course he demanded publicity of accounting and a sane control of business, and he created a new government department, the Department of Commerce and Labor, with full authority to investigate the trusts. Other features of his adminis-



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THEODORE ROOSEVELT

tration were: The successful carrying of the Cuban reciprocity system; the exposure and prosecution of the Post Office graft; the dissolution of the Northern Securities Railway combination; and the settlement of the coal strike of 1902. Almost all his acts were the subject of controversy, opinions dividing bitterly on each issue. His settlement of the coal strike was particularly exasperating to the conservative element among the employing class and its dependents, and his ruthless disregard of party expediency in many instances alienated a group of powerful politicians. There was therefore strong opposition to him when he ran for reelection in 1904. But the great organizer of conservative Republican politics, Senator Mark Hanna, died suddenly and the Democratic opponent, Judge Alton B. Parker, turned out to be a not very formidable rival. The result was a comparatively easy victory for Mr. Roosevelt for a second term. He expressed the idea of his mission as chiefly one of education, saying, "My problems have been moral problems and my teaching has been morality." Details of his second administration will be found in the issues of the YEAR BOOK during that period.

It was in his direction of foreign affairs that he became known especially throughout the world. In this field one of the outstanding features was the intervention in the war of the Far East between Russia and Japan, as a result of which the treaty between the two nations was concluded at Portsmouth. Through Roosevelt's influence Japan withdrew some of her most pressing demands, especially her claim for an indemnity, and peace was secured on a basis that seemed to promise permanence. This brought him prominently before the whole world, and resulted in his getting the Nobel prize of 1907. The great event of his career in relation to the American continent was of course the Panama Canal, which stands in a sense as his monument. He solved the difficulties that stood in his way by a course that has ever since been criticized by certain elements in his own country and in Latin-America, namely—the creation of the Panama Republic out of a province of Colombia that had developed revolutionary tendencies. In his Latin-American policy and in fact throughout the entire course of his foreign policy, he was ably seconded by his Secretary of State, Mr. Elihu Root. The general spirit of the new policy introduced by him in Latin-American affairs was that the United States would be responsible for the good behavior of the weaker states in this hemisphere. In the Far East, American diplomacy won a new footing as the result of the Peace of Portsmouth; the sending of the American fleet around the world; the return to China of the American share of the Boxer indemnity; and the open door diplomacy in the Far East which had been carried out by the skillful hands of the late Secretary Hay. His firmness in the defense of American rights was shown by his handling of the Venezuela difficulty in 1902, when he prevailed upon England and Germany to submit their pecuniary claims to arbitration.

His first wife was Alice Hathaway Lee, who died Feb. 14, 1884, and his second Edith Kermit Carow who survived him. By his first wife he had one daughter and by his second four sons and one daughter. His eldest daughter, Alice, married in 1906 the Ohio Congressman, Nicholas

Longworth. His other children were in the order of birth: Theodore, 1887; Kermit, 1889; Ethel, Archibald, and Quentin, the last named being the youngest, born in 1897. All four sons served during the War of the Nations in the course of which Quentin, who had risen to the rank of lieutenant, was killed in an air fight in July, 1918; and Archibald, who became captain in the service, was wounded. Kermit, who also rose to the rank of captain, served with distinction in the British royal artillery in Mesopotamia, whence he was transferred July, 1918, to the American artillery in France. Theodore, after graduating from Harvard, going into business, and serving in the war, devoted himself to a political career, and was prominent in politics in 1919, being elected in November to the New York Assembly on the Republican ticket by the largest majority ever given to a candidate from his district.

ROSSELL, WILLIAM TREAT. American army officer, died at New Brighton, Staten Island, October 11. He was born at Mt. Vernon, Ala., Oct. 11, 1849, and graduated at the United States Military Academy in 1873. He served on the Atlantic and Gulf coasts, and on the Ohio and Mississippi Rivers as engineer, and was a member of the Mississippi River Commission, 1906-13, and president of the Board of Engineers for Rivers and Harbors, 1909-13. After his retirement from active service on Oct. 11, 1913, he was engaged on the Highway Commission of New York State as advisory engineer in 1914, and was Federal Commissioner of the New York Harbor Line Commission, 1915. During the war he was called again into active duty, April, 1917.

ROSSETTI, WILLIAM MICHAEL. British author, died at London, England, February 5. He was born Sept. 25, 1829, a son of Gabriele Rossetti. Among his writings may be mentioned the following: A blank-verse translation of Dante's Comedy, *The Hell*, (1865); *Fine Art, chiefly Contemporary*, (1867); *Lives of Famous Poets*, (1878); *Life of Keats*, (1887); *Dante G. Rossetti as Designer and Writer*, (1889); *Memoir of Dante G. Rossetti*, (1895); *Gabriele Rossetti* (translated autobiography, 1901); *Some Reminiscences*, (1906). He was editor of the *Germ*, (1856); of Shelley's *Poems*, (1870); of Chaucer's *Troilus and Criseyde*, (1875); of Moxon's *Popular Poets*, (1870); of Wm. Blake's *Poems* (Aldine edition, 1874); of *Poems by Dante and Christina Rossetti*, (1886, 1896, 1904); of *Ruskin, Rossetti, Preraphaelitism*, (1898); of *Preraphaelite Diaries and Letters*, (1900); of *Rossetti Papers*, (1862-1870, 1903); *Dante and his Convito*, (1910).

ROTHSCHILD, Baron LAMBERT. Brussels banker, died January 30, in Paris. He took an active part in the World War, aiding in the creation and operation of the Belgian Relief Commission. In 1914 he guaranteed the payment for 38,000 tons of foodstuffs purchased through Herbert C. Hoover. This was the first purchase made by the organization which later became the Commission mentioned. He also assumed responsibility for part of the \$10,000,000 tribute demanded by von Bissing from the city of Brussels. He and his wife played a part in bringing Rumania into the war on the side of the Allies, the Baroness escaping arrest for her activities only through the intervention of Brand Whitlock, the American minister. The

Baron was held hostage by the Germans in 1914 until \$2,000,000 was paid. He was wounded while serving with the Belgian army.

ROWING. Rowing regained its pre-war popularity in 1919 despite the fact that the intercollegiate regatta on the Poughkeepsie course of the Hudson River was not held. An international happening of importance was the victory scored by Alfred Felton of Australia on the Thames, England, over Ernest Barry for the world's sculling championship. Barry had held the title since 1912 but Felton proved an easy winner, his margin being six lengths.

The annual races between Harvard and Yale were rowed over the New London course for the first time since 1916 and greatly to the surprise of the experts the Blue carried off the laurels in the varsity event. Yale's time was 21 minutes 42½ seconds and Harvard's, 21 minutes 47½ seconds. The Harvard crews were victorious in both the second varsity and freshman contests.

The crew of the United States Naval Academy had a most successful season, defeating Pennsylvania and Syracuse in the American Henley. The Childs Cup race was won by Pennsylvania but the Quakers later bowed to Cornell in a dual race. Yale triumphed over Princeton in an early season contest.

It was estimated that more than 25,000 persons witnessed the National Regatta events held on the Connecticut River at Worcester, Mass. The Duluth Boat Club as in the past captured the majority of the honors. Jack Kelly of the Vesper Boat Club of Philadelphia was the individual star, winning the sculling title in easy fashion and establishing a new amateur record of 1 minute 14¾ seconds for the quarter-mile.

The Oxford-Cambridge race was again postponed. This classic has not been held since 1914 but it is expected that 1920 will see its revival.

RUBBER. The production and consumption of crude rubber tended toward normal in 1919 with the gradual removal of restrictions and other war measures. The plantation crop was estimated at about 320,000 tons to which could be added some 40,000 tons of wild rubber, giving a total production for the year of about 360,000 tons. The production in 1920 was estimated at between 360,000 and 370,000 tons; for the 1921 crop, 381,000 tons; for 1922, 403,000 tons, and for 1923, 430,000 tons, these amounts being based of course on the plantations.

In addition to the United States whose imports are given below, the United Kingdom was expected in 1919 to take about 40,000 tons; France 30,000 tons, Italy 15,000 tons, Canada, 10,000 tons, Japan 10,000 tons, and the rest of the world 25,000 tons, a total consumption of 350,000 tons out of the 360,000 tons produced. The consumption in 1919 was estimated as sufficient to take care of the production and that was anticipated for 1920 and 1921 also.

As distinct from the consumption of rubber British capital owned in 1919 approximately 80 per cent of the production sources in the form of the plantation rubber industry. From July, 1914, to June, 1915, the United States took 141,000 tons of rubber and the United Kingdom 21,000; in the 12 months from July, 1918, through June, 1919, the United States took 180,000 tons and the United Kingdom only 50,500 tons, and as Great Britain has a large transit trade, a great part of this even was reexported as crude rubber.

In 1919 shortage of labor was felt on the rubber plantations of the Straits Settlements, where cheap coolie labor had been employed, and there was beginning to be a demand for agricultural machinery such as tractors and harvesters whose extensive use was being discussed.

The total importations of crude rubber into the United States in 1919 amounted to 226,033 tons as compared with 156,230 tons in 1918. The government restrictions on imports had been done away with in December, 1918, but other causes still existed and served to reduce what would have been used if available.

The increases in 1919 over 1918 were due in a large measure to the broad demand, and it was clearly evident that the industry in the United States was steadily expanding. This was shown by the plans that were being discussed for the opening of a rubber exchange in New York so as to facilitate trading in this commodity.

U. S. RUBBER IMPORTS, CALENDAR YEAR 1919

Plantations	192,270
Paras	27,058
Africans	3,340
Central	1,422
Guayule	1,501
Manicobas & Matto Grosso	442
Total	226,033

The prices of crude rubber in the New York market showed considerable fluctuation but with a downward trend as increased ocean shipping became available. In January upriver fine rubber declined from 64¼ cents to 58 cents and with minor fluctuations reached a low point of 47½ cents in the middle of December, closing the year at 49 cents. First latex crepe opened the year at 58 cents, which figure it reached again in February after a decline, and then fell steadily until July when a bottom of 40 cents was touched. The same in general held true for smoked sheet ribbed rubber, which went to 38½ cents in July. From this point with increased demands, and with but few recessions prices began to go up, finishing the year with 55 cents for both first latex crepe and for ribbed smoked sheets.

In 1919 The Rubber Association of America published statistics it had compiled dealing with the number of employees, total production, and crude rubber consumed in the rubber industry 1917-18. One hundred three out of 452 manufacturers furnished information, but these represented 73 per cent of the rubber output in 1917; and the same percentage was therefore employed in estimating the totals for 1918. The number of employees reported by the minority was 151,078 in 1917 and 148,787 in 1918, a diminution of 3896 or 1.88 per cent. Applying this percentage to the total number reported in 1917 gives 203,818 as the total number of employees in 1918. The 103 manufacturers sold \$819,159,105 worth of goods in 1918 as compared with \$654,948,376 in 1917, an increase of 26.4 per cent. Applying the same method to the total sales, \$1,122,135,760 was given as the estimate for 1918 compared with the \$895,816,248 reported for 1917. It was stated that the product of the 103 in 1918 was very nearly equal to the total product of 1917. The total amount of crude rubber used in 1918, 322,606,605 pounds, was only a little over 5 per cent more than the 306,113,652 pounds consumed in 1917.

While the total amount of rubber used for tires increased slightly, 237,168,347 pounds in 1918 and 233,386,796 pounds in 1917, the quantity used for other rubber goods was greater relatively, so that the proportion of rubber for tires was a shade under three-fourths of the total in 1918 instead of a little above as in 1917. The increase in boots and shoes was about a sixth, 31,468,843 pounds; that in mechanical goods very slight, 22,101,528 pounds and that in other products almost a third, 31,897,887 pounds.

The importance of rubber products in the war was shown in the statistics of the total amounts of rubber material purchased by the Motors and Vehicles Division of the Office of the Quartermaster-General, Director of Purchase and Storage, from April 18, 1918, when the procurement of motor vehicles, tires, and spare parts was consolidated in the Quartermaster Corps, and all the motor vehicle procuring organizations of all the corps of the Army from April 6, 1917, to Dec. 16, 1919. These were as follows:

Article	Quantity	Value
Tires	325,983	\$13,655,363.72
Tubes	898,092	2,331,439.84
Casings	784,145	15,654,601.56
Class "B" Solids (original equipment)	108,127	4,798,552.38
Hose and tubing	576,936	105,851.69
Patches (tire)	121,873	21,096.18
Vulcanizing rubber	729	552.94
Battery parts, hard rubber	17,028	1,999.62
Miscellaneous	2,188	822.13
Grand total		\$36,570,280.06

The cancellation of tires and tubes made up to June 30, 1919, amounted to 159,974 units, or 2,704.69 tons.

Noteworthy progress was made in attempts to provide for future reserve or emergency supplies of rubber in the United States independent of imports from distant tropical countries. This was marked by the publication of "A Rubber Plant Survey of Western North America." By Harvey Monroe Hall and Thomas Harper Goodspeed at the University of California Press, Berkeley, Cal.

In this important work there were recorded the results of an extensive botanical survey of the Great Basin region for rubber-producing plants, begun in 1917 as a war-emergency measure.

During 1918 this developed into a comprehensive search throughout the West for all species known or suspected to contain rubber. The survey was to be continued to determine the possibilities of rubber production in the West. Rubber was found in 25 of the species examined, although in only four was it high enough to warrant the hope for its recovery on a commercial scale.

The *Chrysothamnus*, or "rabbit brush," was found very widely distributed and according to the investigators could supply a rubber to which they have given the name of chrysyl. This is found in the individual cells of the shrub as in guayule, principally in the parenchymatous elements of the cortex and not in the latex. The rubber is found in the older and larger shrubs in the inner bark of the stems. The investigators found that the plants range in altitude from about sea level in some of the desert basins to 8000 feet in the Southern Colorado mountains. The plants were most abundant and of maximum

size in the Great Basin area, becoming more and more scattered and apparently diminishing in their percentage of rubber as this centre of distribution was departed from.

The best samples carried only 3 per cent of rubber and most of them ran less than 2 per cent.

An estimate of what might be expected as to extracted product was given as follows:

Districts	Pounds
No. 1—East Central California and adjacent Nevada	3,280,000
No. 2—Mojave desert, California	400,000
No. 3—Northeastern California and adjacent Nevada and Oregon	1,000,000
No. 4—West Central Nevada	7,680,000
No. 5—Northern and Central Nevada	23,700,000
No. 6—Utah	20,000,000
No. 7—Colorado	24,300,000

There are other regions and other rubber bearing plants which would doubtless bring the possible available supply up to 300,000,000 pounds.

An interesting American rubber project on which progress was being made in 1919 involved the planting of new rubber areas in the Philippine Islands, particularly in Mindanao. Here large tracts had been cleared in 1918 and 1919 for planting with *Hevea*. This was chiefly the work of Dr. J. W. Strong, representing American capitalists and was of great interest as there was unquestionably a wonderful field for rubber plantations in the southern islands as in the British and Dutch possessions to the north and west. It was thought that once this work was started with proper government support the industry might be made important.

Another new source of rubber production was Papua or British New Guinea which was entering the plantation rubber field in earnest. One company in 1919 had nearly 2000 acres with 152,000 trees, over 50,000 of which could be tapped. It produced 89,928 pounds of rubber in 1918 as compared with 54,303 pounds in 1917. Another company has 920 acres planted with *Hevea*. It was thought that with a rise in the price of rubber, or if Australia would establish preferential trade conditions, the Papuan rubber might compete in Australia with that from Singapore.

In Germany government management of the rubber industry ended by a notice dated September 20th, and taking effect September 21st. Thus the German Imperial Minister for Industry officially ended the confiscation of and obligation to register crude rubber, gutta percha, balata, reclaimed rubber, asbestos, partly or wholly finished manufactures, and also the prohibitions against producing them. Provision also was made for the dissolution of The Association for the Sale of War Tires at the end of the year while the prohibition of importation of automobile tires was formally retained; nevertheless, adequate quantities were to be admitted free in so far as German industry could meet the demand but the question was largely one of securing adequate crude rubber and fuel for the plants. A more serious difficulty was the procuring of the necessary textiles.

The Hamburg crude rubber market sought to resume business on a small scale but the question of international exchange and credits even with Holland was a serious matter and terms were unfavorable.

In Italy efforts were being made to develop the rubber industry by establishing preferences.

Italy's consumption of raw rubber had increased four-fold in the period 1910-18. In the last named year it imported 7545 metric tons of crude rubber. Turin and Milan were the important centres for the rubber and allied industries, though there were factories also at Genoa, Leghorn, and Naples. These employ about 20,000 workmen and produce every kind of rubber article; automobile, motorcycle and bicycle tires are the most important and the output of insulated wire and cables is very large. A Royal decree issued in 1919 regarding telephone equipment gave the preference and a protection of 10 per cent to Italian goods, produced by Italian capital and labor and using native material, and next to foreign firms, established in Italy and producing their goods in that country a preference and a protection of 5 per cent.

An interesting statement of the amount of *Herca* rubber yielded per acre on the average in the various rubber plantation districts of India, Ceylon and the British and Dutch East Indies was published in the *Bulletin of the Rubber Growers' Association of South India*. A summary follows:

	Average pounds per acre		
	1917	1916	1915
Ceylon	312	253	248
South India	218	232	187
Johore	208	283	328
Negri Sembilan	208	283	228
Perak	382	367	353
Selangor	344	340	331
Straits Settlements	247	252	243
Sumatra	326	309	305
Java	322	303	253
Borneo	226	224	170

The highest record in the list was 607 pounds in a Selangor estate in 1917, the lowest 81 pounds in the Straits Settlements in 1916.

RUBINSTEIN, ARTHUR. See *MUSIC, Artists, Instrumentalists*.

RUMANIA. A European constitutional kingdom situated on the Black Sea, including the former principalities of Wallachia and Moldavia, and the territory of Dobruja. It is separated from Hungary by the Carpathian Mountains and the Transylvania Alps, from Bulgaria by the Danube River, and from Russia by the Pruth River. Capital Bucharest. During the German occupation in 1916 the government was removed to Jassy but returned to Bucharest after the defeat of the Central Powers. On Jan. 11, 1919 the government by royal decree annexed the territory of Transylvania which on Dec. 2, 1918 had declared its independence of Hungary. (See preceding YEAR BOOK.) The area and population in the following paragraph were somewhat indeterminate because the exact limits of the country were not fixed in 1919. It was estimated that its area in May, 1918, was about 50,720 square miles.

AREA AND POPULATION. The area and population were indeterminate in 1919 because the exact limits were not fixed. Before the War of the Nations, the area was given at 53,489 square miles, including the territory taken from Bulgaria by the treaty of Bucharest, Aug. 7, 1913, which had an area of 2969 square miles. The population according to the census of Dec. 19, 1912 was 7,508,000. This includes an estimate of the population acquired as a result of the Balkan wars, which consisted for the most part of Turks, and comprised the two depart-

ments of Durostor and Caliacra. The four historic divisions of the country with their populations in 1912 are as follows: Wallachia, 3,298,394; Moldavia, 2,145,464; Oltemia, 1,413,997; the Dobruja, 381,306. The capital Bucharest had a population on Jan. 6, 1917, of 308,987. The other large towns with their populations for 1914 are: Galatz, 72,512; Braila, 65,911; Ploesti, 57,376; Craiova, 51,877.

PRODUCTION, ETC. The leading crops are wheat, corn, barley, oats and rye. No later figures for acreage under crops are available than those given in the preceding YEAR BOOK, which date from 1914 when the acreage of plowed lands was placed at 13,074,922. The forests had an acreage of 6,935,120 of which 2,712,582 were State-owned. The chief industries are timber felling and sawing, sugar (from beets), and, above all, the petroleum industry. Among the smaller industries may be mentioned, barge and boat building, boot and shoe-making, tanning, stone-quarrying, and coal-mining. In the new province of Transylvania there are coal and iron industries and some steel is produced. The clothing of the population is produced in local manufactures and to some extent from cloth manufactured in the country, but also from imported cottons. The city populations wear European clothing. In 1919 it was reported that the year's crops of cereals would be sufficient for the needs of the population and that there would be no necessity for further distribution of food and clothing in the form of relief. According to the department of statistics at Bucharest, the extent of the wheat sowing for 1919 was 1,200,000 hectares (1 hectare = 2.47 acres) for the old Kingdom of Rumania—or about 60½ per cent of the surface devoted to this cereal in normal times. The crop in general was good and may be estimated, on an average, at 16 hectolitres (1 hectolitre = 2.8 bushels) per hectare, which would bring the total production to more than 145,000 carloads. No recent figures for finance were available. According to a British authority, the debt on June 30, 1918, was £210,680,000, and the revenue and expenditure (estimates of 1916-17) balanced at £25,828,772.

FOREIGN CAPITAL. In 1919 the Rumanian minister of industry and commerce pointed out that despite the size and wealth of the country, as well as the protectionist policy of the state and special laws for the development of national industries, Rumanian capital was relatively unimportant in industry. The great industrial enterprises which developed in Rumania and are based on the natural resources of the country belonged, he said, almost exclusively to foreign capital. After calling attention to the probable cause of this state of affairs, which he ascribed mainly to the preference of Rumanian capital for immediate returns from investments in purely commercial lines and real property, he indicated the relative importance of foreign capital as follows: Of a total of more than 500,000,000 lei (\$96,500,000 at normal exchange) invested by foreigners in Rumania, the Germans controlled 23.7 per cent; the Dutch, 19.5 per cent; Great Britain, 18.8 per cent; Austria-Hungary, 12.9 per cent; Belgium, 11.3 per cent; France, 7.3 per cent; the United States, 4.8 per cent; Italy, 1.4 per cent; Bulgaria, 0.4 per cent. By far the greater part of this capital was invested in the petroleum industry, the only exceptions being in

the case of Austria-Hungary, which had most of its capital invested in the exploitation of Rumanian forests; Belgium, which controlled the sugar industry, and Bulgaria, which controlled three small mechanical factories. Foreign capital represented 80.2 per cent of the total paid-up capital, both Rumanian and foreign, invested in industry in the country, and Germany and Austria-Hungary were represented by 36.4 per cent of the total foreign capital so invested.

GOVERNMENT. Under the constitution dating from 1866 and modified in 1879 and 1884, the legislature consists of a senate and a chamber of deputies, elected by indirect vote, subject to various qualifications in respect to income and the payment of taxes. The King has a suspensive veto. Executive power resides in a council of ministers. The King in 1919 was Ferdinand I (born, Aug. 24, 1865), who succeeded to the throne Oct. 11, 1914; Crown Prince Carol (born Oct. 15, 1893). The ministry at the beginning of 1919 was under the premiership of J. J. C. Bratiano who was also minister of foreign affairs (appointed Dec. 14, 1918).

HISTORY

After the expulsion of the army of occupation the country was governed by decrees issued by the council of ministers and sanctioned by the king. King Ferdinand approved by decree of January 10th, the official pact of union. The movement against the government in January and February ended in open revolt. It arose from food scarcity, industrial unrest, political propaganda, and the bad state of the national finances. Rumania was fighting on the one hand with Soviet Russia and on the other with Bolshevik Hungary, her chief motive apparently being the acquisition of territory. This at least was the prevailing view in the Allied press, but there were strong defenders of her course, especially in France, who denied that it was marked by the spirit of aggression. King Ferdinand in an interview during the early part of April described his country as an island surrounded by mortal enemies and warned Europe that its safety was threatened unless Rumania held out against its assailants. For an account of the Rumanian invasion and occupation of Hungary, see *AUSTRIA-HUNGARY, History*, and for discussion of questions between her and the Allies, see *WAR OF THE NATIONS*. The last stage of the protracted diplomatic dispute in the course of which numerous notes were interchanged was as follows: The Supreme Council addressed another note to Rumania, November 20th, referring to the difficulties raised by Rumania to the signing of the Treaty with Austria, and asking whether she intended to follow the policy of the Allies, withdraw from Hungary, and deduct the material requisitioned by her in Hungary, from the amount claimed as reparation. No reply being received to this note, the Council dispatched another note (the eleventh), December 3d, which was in effect an ultimatum. It reviewed her failures to comply with the demands of the Allies and fixed December 8th as the time limit within which a satisfactory reply should be given. The Rumanian delegates signed the Austrian and Bulgarian treaties on December 10th just after the American delegates had left Paris.

RUSSELL, GEORGE WILLIAM ERSKINE. British author and politician, died in London on

March 17. He was born in London, Feb. 3, 1853, the youngest son of Lord Charles Russell, and was educated at Harrow and University College, Oxford. He became a member of Parliament in 1880 when the Liberals swept the country, but lost his seat in 1885. Returned to Parliament in 1892 he was immediately appointed under-secretary for India, but two years later was transferred to the same office in the Home Department. He abandoned political life in 1895, leaving his seat in Parliament, and gave his time to journalistic work, and the writing of books, among which may be mentioned the following: *A Londoner's Log-Book; The Household of Faith; Collections and Recollections* (two series, 1898); *St. Alban the Martyr, Holborn; Fifteen Chapters of Autobiography; Edward King, 60th Bishop of Lincoln*, (1912); *The Spirit of England*, (1915); *A Short History of the Evangelical Movement*, (1915); *Portraits of the Seventies*, (1916); *Arthur Stanton*, (1917).

RUSSELL SAGE FOUNDATION. This organization was incorporated in 1907 for the improvement of social and living conditions in the United States. Its work is primarily research and publication, and its staff consists of men and women trained in special lines of investigation and social organization. For this reason, in 1917, when the United States entered the war, the Foundation was able to offer the services of a group of specialists to the government. The work of the Division of Statistics and Education, both under the direction of Leonard P. Ayres, has consisted largely of statistical investigation and reports, employing a number of trained statisticians. After the declaration of war, Dr. Ayres, accompanied by eight members of his staff, went to Washington, where they immediately organized a Division of Statistics for the Council of National Defense. The first part of their service consisted in the preparation of organization charts and plans for most of the important war agencies, including the army, the navy, the Food and Fuel Administrations, the Committee on Aircraft Production, and War Industries Board and others. The second part of the service dealt with war statistics and consisted in the preparation and presentation in graphic form of accurate information with regard to numbers of men available for military service, quantities of supplies needed, ordered, and delivered, questions of shipping, of the transportation of the American Expeditionary Force and other data. By the beginning of 1918, it became evident that this phase of the statistical work was so important to the army and so confidential in nature that it was no longer feasible to conduct it as a civilian activity. Accordingly it was organized as a branch of the work of the General Staff with Colonel Ayres in charge.

The Department of Recreation, which has for some years studied and promoted methods of public recreation and the constructive use of leisure time, applied its experience to the needs of soldiers and sailors, under the direction of Lee F. Hanmer, and Clarence A. Perry. This department assisted the government in the organization of the Commission on Training Camp Activities. After the armistice the work of the Commission on Training Camp Activities was reorganized as the Education-Recreation Division of the General Staff.

was operating, supported by a naval squadron in the Black Sea. The region between the Crimea and Ekaterinodar was overrun by Bolshevik irregulars who were reported to be pillaging the country. In the Caucasus the Bolsheviks held the lower Volga as far down as Astrakhan, and the Caspian coast as far south as Petrovsk. Toward the west their lines extended to within fighting range of the Don Cossacks and Denikin's troops. At Archangel a temporary government had been set up under Tchaikovsky with the aid of the British and Allied expeditionary forces which had been gathered at that point and on the Murman coast with a view to driving on toward Petrograd and proceeding in the direction of the Kolchak army. The Baltic provinces had set up independent governments which were resisting the Bolsheviks. Polish forces were operating on the southern front toward Minsk, and still further to the south a Rumanian force was fighting towards Ukraine. There was division among the anti-Bolshevik forces. In Ukraine, for example, the army of General Petlura was operating not only against the Bolsheviks but against the Poles and the Rumanians, and later against Denikin. The Rumanians also were fighting against Denikin.

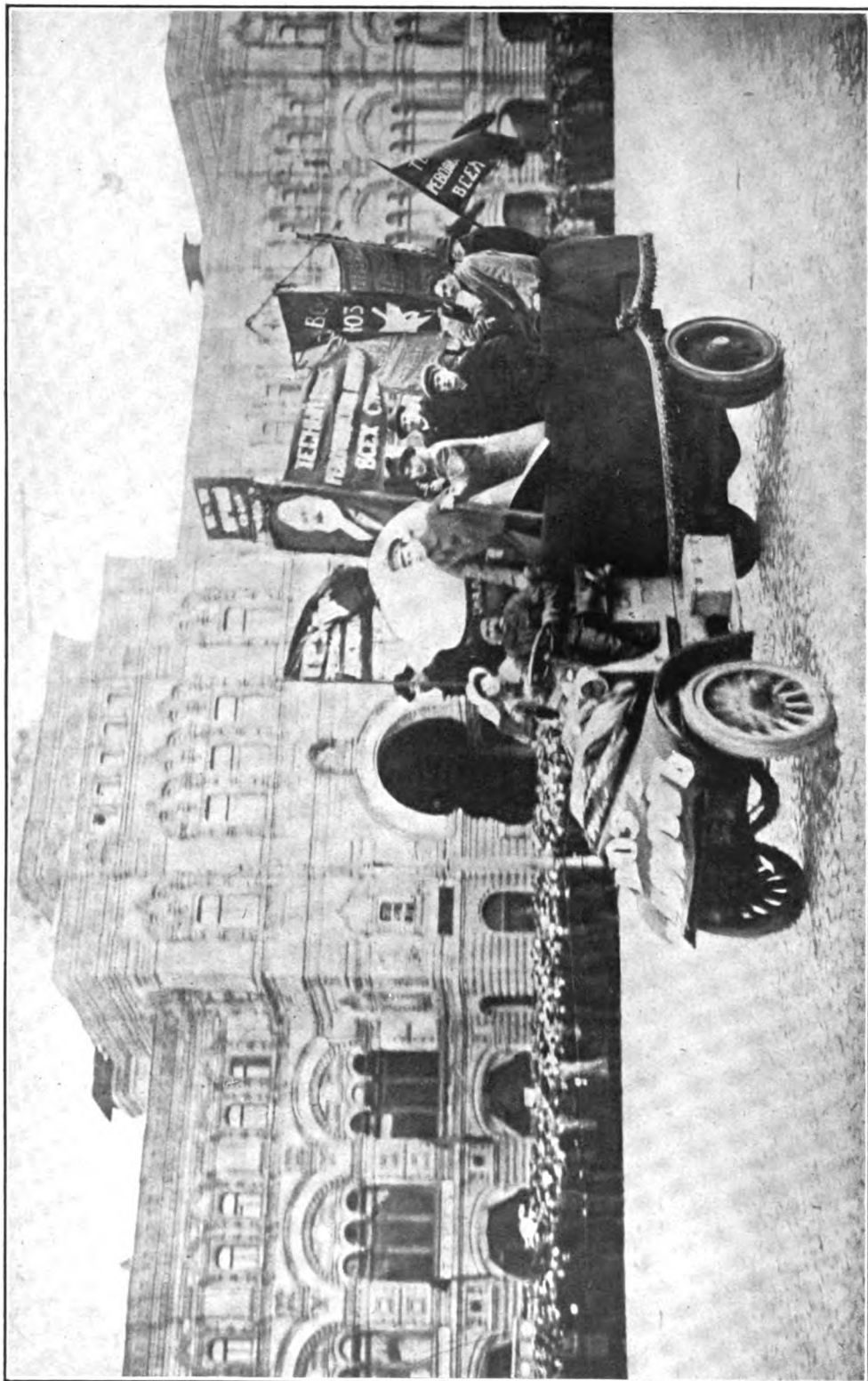
CONDITIONS IN FEBRUARY. On February 7th a successful raid by a detachment of the French foreign legion was reported in the neighborhood of Archangel. Fighting, however, was still going on. The reports in the beginning of February indicated that Lenin was taking a dark view of the prospects of the new government which he said was, after all, only an experiment. He was further quoted as saying that the old economic conditions had bequeathed many specialists to the government, and that they must be invited to join the government in its work. Meanwhile reports of the execution of the four Russian Grand Dukes were published. This execution was said to have taken place on January 28th in a suburb of Petrograd, and at the same time 172 other persons, including 28 women, were said to have been shot for having taken part in an Anglo-French organization. According to this report, the Grand Duke Nickailovitch, had been arrested at the end of December, 1918, and kept with four others in a small cell in prison. Although he had been a man of purely artistic and literary tastes, and had kept aloof from politics and military affairs, he was accused of having favored, at a recent date, the Cadet party. At the same time the Grand Duke Paul Alexandrovitch, uncle of the Czar, was kept in prison at Vologda, whence in January he was transferred to Petrograd. It was learned at his examination that his son had been shot while in the Urals. The Grand Duke George Mikhailovitch, had been arrested in February, 1918, and kept in prison. He too was confined at the prison in the suburb of Petrograd.

THE BOLSHEVIST GOVERNMENT. According to reports in the papers, at the beginning of March a definite break had taken place between the extremists led by Trotsky and Zinovieff on the one hand and the moderate party of Lenin on the other. At this time considerable comment was occasioned by the report in the United States of an offer which Lenin had made to America. The former American ambassador to Russia, in his evidence before the Senate propaganda investigating committee, said that Mr.

Raymond Robins, former Red Cross representative in Russia, had returned to the United States bearing a message from the Bolshevik government, offering under certain conditions to make concessions to the United States similar to those granted to Germany under the Brest-Litovsk treaty. At the beginning of March Zinovieff declared, on the occasion of the anniversary of the assassination of the emperor Alexander II, that the Red army was destined to fight, not only in Russia, but also in the streets of London, Paris and Rome for the great ideal of communism, and he warned the bourgeoisie of Europe to keep their hands off the Red republic, saying that they would take Petrograd only by passing over the dead bodies of the Bolsheviks.

THE CAREER OF KOLCHAK. Early in March important successes of the Kolchak forces were reported. The offensive between Perm and the Siberian railway was said to have pushed back the Bolsheviks over 30 miles, and broken their front over a distance of 20 miles. The Bolsheviks were reported to be retiring and to have left large masses of prisoners in the hands of the Kolchak troops. A little later the latter were said to have formed two large salients extending within the enemies' line for more than 40 miles and threatening their railway communications. By the end of April Kolchak had captured Glazov, between Viatka and Perm, and there was hope of a junction with the forces at Archangel. By May 3d he had established his headquarters at Ekaterinburg.

The government that he had set up at Omsk appeared to be a more stable government than its predecessors, and secured a reputation for military successes and for ability to maintain law and order. In regard to these military successes, however, the reports printed in the newspapers appeared to come from sanguine partisans who expressed hopes rather than realities, for victories were repeatedly announced in conspicuous articles only to be denied a few days later in articles more or less concealed in the concluding pages of the newspapers. Hence it was not known how much of the reputation for success was simply a matter of propaganda, and as time went on suspicion that the press accounts bore no relation to actuality was strengthened by the fact that although a long series of triumphs had been hailed by the newspapers, at the end of them it appeared that Kolchak was steadily losing ground and finally was on the verge of collapse. However, the reputation won by him served to bring about a conditional recognition of his government on June 12th by Japan, and the Council of Four. He took his stand publicly as a representative of democratic principles, and declared that as part of his programme he would hold elections for a constituent assembly as soon as he should reach Moscow, or if conditions at that time were too disturbed, that he would attempt to reconvoke the former Constituent Assembly which had been overthrown by the Bolsheviks. He further agreed to recognize the independence of Poland and Finland and to come to friendly arrangements with the other governments within the former Russian empire. In return, the associated Powers agreed to supply arms, munitions, food, and money, but not troops, in assisting the new government. Soon afterwards, however, Kolchak's forces were driven back about 200 miles by a vigorous Bolshevik advance. The



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BOLSHEVISM IN RUSSIA
Truckload of Bolsheviks Spread Propaganda Through the Streets of Moscow

latter occupied Ufa, June 8th, and recovered Ekaterinburg, July 17th. In the summer and early autumn frequent reports of Kolchak's successes were circulated widely by the best known newspapers in the Allied countries, and resting apparently on no foundation whatever. At the same time, as the result of persistent propaganda, he was held up by the most serious journals as the true representative of the Russian people, and any doubt expressed as to his military success or as to the political forces behind him was attributed as pro-Bolshevism. Finally, however, on November 15th, the news came that his capital had been taken by the Bolsheviks and that his army was being driven back. In November and December there were frequent reports of disputes between the Czechoslovaks in Russia and the Kolchak government, in which the latter was accused of committing atrocities upon persons who entertained democratic convictions. Down to the end of the year there were conflicting reports both as to the merits and as to the success of the Kolchak venture, but his armies were shattered, the movement had collapsed, and he himself was a fugitive.

THE ARCHANGEL FRONT. The following are examples of the reports of the press in regard to the Archangel operations early in the year: Severe fighting was reported on February 14th, when it was said that the Bolsheviks were exerting pressure to the south and southwest, but that the Allies on the southern front had dealt a successful counter-attack. Renewed fighting was reported at Archangel, March 1st, and the Allies were said to have occupied definitely a point some 360 miles south of the Port Murmansk. During the next few days, engagements were reported to the general advantage of the Allies. It was reported on March 14th that fighting was going on in the Vaga sector and that attacks by the Bolsheviks had been repulsed; also that the enemy had made an unsuccessful attack upon Murmansk. Later the Bolsheviks claimed to have captured a village on the Vaga River. Successful raids by the Allied troops on the Archangel front were reported in April. These and many other successes of the Archangel forces, though constantly emphasized in the press dispatches, were of no importance whatever. The hold of the Allies on the country was always precarious. Hope of a junction with Kolchak vanished after his retreat in the summer, and from that time on the British began to withdraw. Meanwhile sharp criticism had been leveled at a military policy which kept the Allied troops in this quarter with these results and finally it was stated, on January 17th, that all Allied forces on this front would be withdrawn as soon as possible. It was reported on April 10th that the American forces were discontented and had even threatened mutiny. The report as to the mutiny was denied in certain quarters but all reports indicated a spirit of discontent, especially as a result of ignorance as to what purpose their presence in Russia actually served. In June they were withdrawn. On May 30th Mr. Winston Churchill in the House of Commons explained that all military powers on this front would be turned over to the Russian troops that were opposing the Bolsheviks, and on June 14th a British contingent also was withdrawn from this region. General Rawlinson was sent

from England, August 1st, to direct the process of evacuation. Some unimportant rear actions were fought, and on October 2d the last of the troops were embarked. On November 8th, Mr. Lloyd George definitely announced the abandonment of British aid to the anti-Bolshevist party, and an envoy was sent to arrange with the Bolshevik government for an exchange of prisoners.

THE DENIKIN CAMPAIGNS. The Cossack generals, Krasnoff and Denikin in March, aided by the British, held the region between the Caspian and Black Seas, and expected to advance up the rivers Don and Volga; but in less than two months the Don Cossacks were nearly surrounded by Trotsky's troops. The army of Denikin was attacked on two sides,—by the Bolsheviks on the north and the Georgians on the south. The trans-Caspian region was relinquished by the British, but as Kolchak still held Orenburg, the Bolsheviks could not profit from this gain. At the end of July General Denikin, aided by the British, was reported to have gained brilliant victories over the Bolshevik army, and retaking, according to the reports, the Don and Donetz basins, which contained supplies and plunder. After the retreat of Kolchak, hopes centred in Denikin, whose progress was reported as continuing throughout the summer and early autumn. In December, however, news of reverses began to appear in the newspapers. It was learned that by December 10th, his forces were in retreat. They tried in vain to prevent the Bolsheviks from making their way through the Donetz coal basin toward the Black Sea and the Caucasus. They were steadily driven back over a wide front, and at the close of the year their position was critical.

UKRAINE. At the beginning of the year the complicated situation in Ukraine may be presented briefly as follows: A Cossack hetman, Skoropadski, who had been set up by the Germans as dictator, had been overthrown. The Poles thereupon seized Kholm and Eastern Galicia; the Cossacks, aided by the British, attacked the Ukrainians on the east; the Bolsheviks had pushed down from the north, while the French, reinforced by Greeks and Senegalese, occupied Odessa; the Rumanians, with the consent of the French, had occupied Bessarabia; and the Turks were claiming Crimea. In the midst of this confusion of claims and hostilities, the Ukrainians rallied to the support of two members of the Social Democratic party, namely General Petlura and Vladimir Vinnichenko, former prime minister of the Ukrainian republic. These leaders, though they could muster a sufficient number of men, lacked money, trained officers, and experts, and they made urgent appeals to the Allies, who, however, paid no attention to them. Petlura was driven out of Kiev after unsuccessful appeals for aid to the French who refused to give it except on the condition that France should have complete military and industrial control of Ukraine for an indefinite period. Two months before the fall of Kiev the request of the Ukrainian representative at Paris for admission to the Peace Conference was refused. Another aspect of the difficult and complicated situation was the fact that the French had committed themselves to the support of the Poles in their claim to Eastern Galicia with the exception of the city of Lemberg, although the population of that region is chiefly Ukrainian.

Meanwhile the Bolsheviks were making converts among the Ukrainians, who had come to the conclusion that the British and French, especially the latter, were aiming to take their lands away from them and place the country under a reactionary rule. About this time it was reported that a Franco-Grecian army of 50,000 men was pushing on a triumphant march to the north, winning brilliant victories over the Bolsheviks and finally capturing Kiev. It was subsequently reported, however, that instead of this a Franco-Grecian army had advanced a short distance from the coast, had been defeated, and had abandoned Odessa on April 6th. The Bolsheviks by May 1st had possession of Sevastopol, and Kherson. In the west a Franco-Rumanian army, organized in November by General Berthelot, had made some progress toward Kiev, toward the end of the year, but it was obliged to retire to the Rumanian border. General Petlura, regaining Kiev in May, threatened the Bolshevik communications with Odessa. Some prospect of conciliation in the matter of handling the Ukrainian situation was indicated on May 3d when President Wilson, in response to a renewed appeal for help, invited the Ukrainian government to send delegates to Paris for the discussion of territorial claims in dispute between Poland and Ukraina.

MILITARY SITUATION IN SEPTEMBER. The following account of the situation in Russia at the end of September is derived from French military sources, and illustrates the point of view in certain French quarters, and the tendency of French diplomacy. The information is evidently derived from sources sympathetic with the policy of Allied intervention in Russia. It was reported at that time that there were 15 armies maintained on a war footing by the Soviet government of Russia; that they were well-organized and subject to an iron discipline, and that they had plenty of arms and munitions. Against them there were formidable forces, but they were dispersed and lacked all unity of direction. In the east and southeast was the army of Kolchak which, after some notable successes, had been obliged to fall back on Orenburg in Siberia, under the pressure of Trotsky's armies which were in greater strength than before, because the strain at certain other points was relieved. At the end of September a new offensive of Kolchak was reported, but there had been frequent disappointment in respect to his advance movements. To the south Denikin was pushing on to Kharkov and executing an independent movement between Kolchak and Petlura, who was at a long distance from his left wing. Petlura was acting against Kiev, which he captured September 2d, but had to retire on the approach of General Denikin, and the Bolsheviks, as a result of this conflict between them, recaptured the city soon afterwards. More to the north were the Poles, who after some successful advances, had been checked on the Berezina. They seemed, however, to be on the point of resuming their march toward Mohilev. Finally in the north were the Letts in Upper Livonia and the Estonians with the troops of Yudenitch on their left. The latter commanded the army of a new provisional government which had been set up in the northwest under M. Lianozov, for the regions of Petrograd, Novgorod and Pskov. In this region, however, conditions were in a chaotic state and it was impossible

to know precisely what was going on. On the west the Soviets were menaced by both the Poles and the Letts. The advance from different directions threatened to penetrate the upper valleys of the Dwina and Dnieper and strike at Vitebsk and Mohilev, in which case they would outflank the five hostile Soviet armies occupying White Russia and the Ukraine. This would greatly aid the plans of Denikin and Petlura. Against it, the Germans were said to be doing all in their power. They had left in Courland, in disregard of the treaties, the troops of Von der Goltz, about 40,000 strong, and to the north near the Wilna was the army of Lieven, strongly suspected of operating in German interests. The motive attributed to the Germans was to hold out a constant menace in the rear of the Polish army, which moreover had lost to some degree its moral independence and freedom of action by events in Upper Silesia. Meanwhile, in order to mislead the Allies, a revolt was reported to have broken out among the troops of Von der Goltz. This revolt was said to have been in reality encouraged by the German government, though Ebert protested that he had no authority in the matter and no means of restoring discipline, declaring that he had recalled Von der Goltz, but that the latter had not obeyed. He pointed to the good effects of this disobedience, since the presence of Von der Goltz at Mitau had already produced a salutary effect. The President declared that he had no other means of acting than by persuasion. He condemned the excesses of the soldiers, but he could do no more. The answer to this in French military quarters was that if President Ebert had conformed loyally to the agreements into which his own government had entered he would long ago have withdrawn from the Lettish provinces the troops that were now giving trouble. President Ebert was also accused of surreptitiously and fraudulently twisting the terms of the treaty in regard to the reduction of the German effectives to 100,000 men. It was believed that the Germans were resorting to the same tactics that followed the Napoleonic victories when Scharnhorst and others had clandestinely created a new German army. Expedients were already in operation toward the building up of a new army in Germany around the nucleus of the Reichswehr. See *WAR OF THE NATIONS, French criticism of the treaty*. It was said on all sides in French military quarters that Germany was playing a trick on the Allies; that in the Baltic provinces, in Upper Silesia, and in the very heart of Germany, military plans at variance with the treaty were being carried out. Meanwhile the Yudenitch advance failed and he retreated to Revel.

MILITARY SITUATION, DECEMBER 31. Fighting was going on between the Red forces and the Estonians at points on the Narva front at the very moment that their peace delegates were signing an armistice. (See paragraph below on *Dorpat Conference*.) On the Petrograd front the situation of the Yudenitch army in November was serious and in the following month it was reported to be utterly routed. Omsk, the Kolchak capital, had been taken, as noted above. On December 13th, the capture of 10,000 of his troops and 500 officers was reported; on December 26th this was followed by the news that Tomsk and seven other Siberian towns had fallen; and at the end of the year the way to

Irkutsk, the new capital, was said to lie open to the Bolsheviks. Denikin's headquarters had been taken, and the position of his army at the close of the year was, as noted above, precarious.

THE PRINKIPO SCHEME. A suggestion was put before the public by the *Manchester Guardian* at the close of 1918 for a meeting of the various parties in Russia with representatives of the Allies at a conference which should be held at Prinkipo in the Sea of Marmora. At the initiative of President Wilson it was considered at the Conference soon after it assembled, and the proposal was made at the end of January. The Bolsheviks made a tentative offer of acceptance, but the other parties refused. The attitude of the conservative press in the Allied countries was hostile. The project completely failed, but on account of circumstances connected with it was the subject of discussion during many months. The matter became involved in an acrimonious controversy in September on account of the testimony of Mr. William Bullitt before the Senate Foreign Relations Committee in the United States. Mr. Bullitt was an expert of the American peace commission, who formerly had been Washington correspondent for the *Philadelphia Ledger*. He was afterwards appointed to a position in the state department, and, having gained the interest of Colonel House and Mr. Lansing, became a member of the American delegation to the Peace Conference. He was associated with writers of a radical tendency; among others, Mr. Lincoln Steffens with whom he was sent on a mission to Russia after the Prinkipo plan was dropped. This journey to Russia, according to him, was kept secret from the other Allied representatives with the exception of the British. His object was to find out how the fighting could be stopped, and to return as soon as possible with the terms which the Soviet government would accept for peace. According to Mr. Bullitt's testimony, the Prinkipo plan came up in the first days of the Conference early in January when Mr. Lloyd George proposed a meeting of all the Russian factions in Paris. Mr. Bullitt produced the minutes of the Conference of the Council of Ten at the meeting of January 21st. He said that after President Wilson had suggested a meeting with the Russian representatives in the east it was agreed that Mr. Wilson should draft a plan for a conference at Prinkipo. French opposition caused the abandonment of the proposal, but, according to Mr. Bullitt, Lloyd George was still determined on some such meeting. Then occurred the attempted assassination of M. Clemenceau (February 19th) and Lloyd George declared that it was impossible to go on with the project, which, meanwhile, was opposed also by the anti-Bolsheviks in Russia. Then followed Mr. Bullitt's mission to Russia above-mentioned. Along with him went Captain Pettit and Mr. Lincoln Steffens. They were in Russia for only a short time, and they returned with a proposal of peace from Lenin's government. Mr. Bullitt read this proposal to the Senate committee, saying that it had not been made public in Paris and that Colonel House had been enthusiastic in its favor. As to the attitude of Mr. Lloyd George, Mr. Bullitt testified as follows: Mr. Lloyd George said he did not know about British public opinion, and, calling attention to the attitude of a well-known British newspaper, asked

if he could be expected to do anything in face of that sort of thing. But he added that some one should be sent to Russia, and he discussed the qualifications of several persons. Mr. Bullitt said that Mr. Lloyd George urged him to make his report public, but when he submitted it to the commission no one was willing to assume responsibility for its publication. Mr. Bullitt characterized the remarks of Lloyd George in the House of Commons as an extreme case of misleading the public. After returning from Russia Mr. Bullitt resigned from the mission, declaring his dissatisfaction with the treaty and with the President's attitude, and he addressed an open letter to the President, saying that by his failure to insist upon a just peace he had been faithless to millions of liberals who had once believed in him. Mr. Bullitt's evidence contained other features that caused a sensation that was seized upon with eagerness by the opponents of the administration and the critics of the treaty. He said that the American Secretary of State had told him on May 19th that if the Senate and the American people understood this treaty it would be defeated; that the League of Nations was useless and that parts of the treaty were thoroughly bad. He said that Mr. Lansing, General Bliss, Mr. White and Colonel House had all been dissatisfied with many of the things that the President had agreed to. As to Mr. Lloyd George, he said that when he returned to England intending to recommend favorable action on the Soviet proposal he found that Lord Northcliffe and Winston Churchill had rounded up a conservative majority against him. "In dealing with Mr. Lloyd George," said Mr. Bullitt, "you must remember that you cannot take any of his public statements seriously." Mr. Lloyd George's answer to the charges of Mr. William Bullitt was published on September 15th to the effect that his report of private conversations between himself and Mr. Lloyd George and the latter's secretary, as printed in the newspapers, was a tissue of lies. The proposals which Mr. Bullitt took with him to Russia were of a private and unofficial nature, but he gave them out to the Senate in his testimony. They contained the following chief points: Immediate cessation of hostilities; opening of railways and ports; free passage to and from Russia of Allied Nationals; general political amnesty on both sides; restoration of trade relations; withdrawal of Allied troops as Russian armies were demobilized; the present government to remain in control of occupied territories. The terms brought back by him from Lenin coincided practically, he said, with these conditions. Another attempt to negotiate with the Soviet government, after a recess of the British Parliament, began when Colonel Malon, a young Liberal member, was sent to Esthonia and returned with a new offer of peace terms which corresponded to those made public by Mr. Bullitt with the exception that it made a threat of transferring the offer to the Central Powers if the Allies did not accept it. This new movement was characterized by the French and other papers hostile to a policy of negotiation as a return to the Prinkipo plan and was sharply criticized.

THE BALTIC PROVINCES. The Baltic provinces that were struggling for independence were Esthonia, Lithuania, and Latvia (Lettland), the last-named comprising the region to the north

of Lithuania east of the Baltic and south of the Gulf of Riga comprising the former province of Courland. Down to the beginning of 1919 they were under the domination of the "Baltic barons," an aristocracy of German descent, who owned a large proportion of the land. After the Russian collapse the peasants seized their property. The barons raised a considerable army, estimated at 50,000 men, under Bermond, a former Russian officer, which proceeded ostensibly to operate against Petrograd, but its real object was to restore the barons to their land ownership. His army was said to consist partly of mercenaries hired in Germany, partly of former Russian prisoners of war, and Russian loyalists. This army set out for the capture of Riga, along with the army of General von der Goltz. The latter's troops were partly professional soldiers and partly German land-seekers and adventurers. It invaded Lithuania, but was ordered by the Peace Conference to desist. Later it advanced toward Riga, but Von der Goltz was compelled to resign by the Peace Conference, and in November his successor, General Eberhardt, proceeded to withdraw the troops. Meanwhile the Lettish army drove the troops of Bermond out of Riga, and they were finally placed under the command of General Eberhardt who sent them back to Germany. Mitau was surrendered by the German-Russian troops without resistance. The Berlin government had made peremptory demands that the German troops in the Baltic region, known as the "Iron Division," should withdraw, and issued an ultimatum threatening severe penalties which was published November 1st. At the end of the year the retirement was in progress, amidst charges of atrocities on both sides.

DORPAT CONFERENCE. On December 31st an armistice was agreed upon between Esthonia and Soviet Russia. This followed a long period of discussion in which the issue seemed doubtful. The decision was at last reached that Esthonia would make a month's trial of the arrangement, and test the good faith of the Soviet government. The armistice was to last nominally for only a week, being terminable by either party after that time at 24 hours' notice, but it was provided that the armistice must be ratified by the Esthonian Constituent Assembly, and this body did not meet again until the end of January. There had been deep distrust of Bolshevism on the part of the Esthonians, but the Moscow delegates persisted in assuring them that they were representatives of a responsible government which sought to live at peace with its neighbors. There was not much confidence on either side that permanent peace would result. The Bolshevik delegates, while admitting that they were glad to conclude peace with one of their enemies, were apprehensive of the future, being especially suspicious of France who, they said, was not unlikely to encourage some military adventure that might make it necessary for Soviet Russia to maintain an army of 3,000,000 men.

INTERVENTION. The subject of intervention was constantly discussed during the year. The participation of the United States dated from July, 1918, as noted in the preceding YEAR BOOK, when the United States and Japan agreed to join in a movement from Vladivostok as a base, to cooperate with the Czecho-Slovaks. Its purpose was to provide in Russia for self-government and the intervening Powers dis-

claimed any aggressive purpose or territorial ambitions. With the military forces there was also a relief expedition and a commission of industrial and agricultural experts from the United States to aid in the restoration of economic life in Russia. This undertaking was carried out with the approval of Great Britain, France and Italy, which Powers, together with China, each sent a small body of troops into Siberia also. The Japanese course at first gave the Allies some anxiety, for instead of sending a body of 7000 men as agreed upon she sent a body of 72,000. The United States government brought the matter up with the Japanese Ambassador and a large number of Japanese troops were recalled from Siberia.

As time went on the spirit of criticism awoke in the United States as well as in other countries in respect to the policy of interference. For example, in the United States Senator Hiram Johnson of California characterized the policy as a wretched adventure and as utterly stupid. On the other hand it was defended by leading men in all countries as, for example, by the French Foreign Minister, Stephen Pichon, and British politicians, such as Lord Curzon and Lord Milner. In the United States, Senator Hitchcock and others who spoke for the administration came to its defense. The British Government in January proposed a more conciliatory policy toward Soviet Russia but this failed to meet the approval of Parliament, and then as an alternative policy the so-called "sanitary cordon" was adopted. By this the Allied troops held the passage to the north and along with Russian and Czecho-Slovak forces they held the Trans-Siberian Railway eastward from Omsk; British troops, along with the Cossacks, controlled Turkestan and trans-Caucasia; an Allied squadron on the Black Sea supported the French and Greek force at Odessa; and the buffer states guarded the western front. As a result of this an intermittent state of warfare continued between Bolsheviks and anti-Bolsheviks with varying successes, and with the singularly vague and contradictory reports indicated in the preceding paragraphs.

BRITISH INTERVENTION. Intervention of the British government in Russia was the subject of sharp attack in Great Britain just as American intervention was in the United States. In January the attitude of the British from a military point of view was indicated as follows: The military situation as it appeared in the previous spring must be recalled in order to understand present conditions. At that time the Germans were seeking to obtain a decision in the West, and the main idea of the Allies was to prevent the Germans from obtaining this decision. In order to do this the Germans must be kept from transferring any more troops from Russia to the west and also from penetrating into Russia and absorbing her rich resources. Unless these things were done the effects of American assistance would be neutralized. Apart from purely military necessities the war could not end without the political as well as the military collapse of Germany. Now Russia had for decades been penetrated by German interests, and after the war, unless she were thwarted, Germany would be able in a short time to absorb the great territories of Russia and Siberia. In 1918 it was impossible for the Allies to dispatch large forces, but weak as their forces were

they had contributed extensively to the overthrow of Germany. The Germans had withdrawn 48 divisions from the east to the west after the Bolsheviks came into power, but after the Allies landed in Archangel these withdrawals ceased for three months. The statement concluded with the following remark: "Even the more violent of the opponents to our present commitments in Russia can hardly fail to be moved by the prospects of what would happen to such populations, [that is, the populations which had been protected by the Allied advances], should the Allied forces be withdrawn." From this point of view Lloyd George's proposal in January of a conciliatory policy toward Russia was bitterly attacked. During the year, however, anti-intervention sentiment steadily gained ground. See GREAT BRITAIN and WAR OF THE NATIONS.

FRENCH OFFICIAL VIEW OF INTERVENTION. In regard to the Murmansk front M. Pichon in his defense of French policy on March 26th declared that France had intervened in agreement with the Tchaikovsky government and for several months the situation had remained unchanged. At Archangel after a long period of quiet the Bolsheviks suddenly took the offensive and the Allies were driven back but they established themselves in solid positions. At that time the figures of the Allied troops in that region were as follows: British, 13,100; Americans, 4,820; French, 2,349. There was a smaller number of Italians and Serbs, and the Russians on the side of the Allies numbered 11,770. He gave out the usual misinformation in regard to the Kolchak government. He said that it was increasing daily in strength and that it represented Russian unity, etc., whereas as a matter of fact it was known to be failing throughout the year. An agreement had been reached in Siberia he said between the French and the British governments that the French General Janin should be commander-in-chief of the operations and the British General Knox should command the rear. The Bolshevik position at this point was becoming more difficult and dispatches showed that the Allied troops had advanced in the direction of Samara and were enveloping the Bolshevik army which was retreating. The Allies had settled the difficult Trans-Siberian question providing for the transport of provisions for the troops. In southern Russia the military campaign in that region had been assigned to France and the forces of the different nationalities were as follows: French, 140,000; Rumanians, 190,000; British, 190,000; Italians, 40,000; Serbs, 140,000; Greeks, 200,000. The situation in the Ukraine was uncertain. General Denikin had declared that the Russian people had always remained true to the Allies. As to Bolshevism M. Pichon characterized it not as a government but as an organization of anarchy. He said that he recognized the seriousness of the question and that it was not merely a French problem but a problem for all the Allies and that France could not alone achieve its solution. M. Clemenceau and he had agreed on the policy of the "Sanitary Cordon" which should bar the road to Bolshevism but it was not their intention to attempt the penetration of Russia. The Conference had the Russian problem before it at that time and it was becoming simplified. If the Allies should abstain from intervening in Russia the danger was that

Germany would certainly develop a Russian policy and would intervene. The danger against which the Allies were fighting was that of Russia as an ally of Germany.

INTERVENTION (UNITED STATES). Many persons in the United States who were strongly opposed to Bolshevism, and anxious to employ the best means against its spread, were in doubt as to the wisdom of the government's policy of intervention. They complained that the arguments and explanations offered by the government were inadequate both as to the policy in general and as to the question of blockade or commercial non-intercourse in particular. For example, those who doubted the wisdom of the policy of shutting off food from the Russian population argued that if the food supplies were withheld on the ground that they would not reach the people who needed them, but would be appropriated by the Bolshevik government for distribution chiefly to its troops or to classes loyal to it, and so strengthen the party in power without really benefiting the meritorious and suffering elements in the population, then it might be stipulated in advance that the United States should control the distribution. The offer of the United States to send food supplies to Russia subject to the retention of control over their distribution might be made, and then if it were refused the responsibility would rest upon the Bolshevik government. It was argued that in such a case the odium attaching to the Bolshevik government would be the best weapon against it. It seemed unreasonable that the case for withholding food supplies should be allowed to rest where those in favor of that policy were apparently willing to let it rest. This obvious inquiry as to why an offer of supplies could not be made subject to some such stipulation met with no response. For example, so late as the beginning of November after these aspects of the question had been before the intelligent part of the American public for over a year an official of the State Department explained the American policy by simply repeating the argument that the supply of food would aid the Bolsheviks in their policy of extinguishing the middle classes; that they would appropriate three times as much to the army as to the civilian population; and that they would pay no attention to the real needs of the community. The argument made no reference whatever to the possibility of overcoming this difficulty.

In the second place, those who were open-minded on the subject of a Russian policy could not understand the argument for intervention and blockade which was based on the fact that the Bolshevik government was aggressive and propagandist, and left no means unemployed for instilling its doctrines into other populations, and undermining their governments. For the Bolshevik government had repeatedly declared its willingness to cease this propagandist activity if foreign states ceased their aggression against the Russian government. The government official quoted above merely repeated the argument that it was the declared purpose of the Bolsheviks to carry revolution throughout the world, and that they had on every possible occasion sought by means of their propaganda to overthrow the American government. He added nothing to explain why a pacific policy toward Russia could not put an end to that

propaganda and so tend to check the spread of Bolshevism.

In short, the arguments in favor of intervention overlooked the very questions that were raised not merely by opponents of that policy, but by persons who merely desired enlightenment. The most obvious objections and the sort of answers that would occur immediately to the reader's mind were entirely ignored by many of the government's spokesmen in their arguments in spite of the prolonged discussion on the subject. There was a great abundance of writing all tinged with sympathy for Bolshevism, all seeming to rest on a sentimental basis, and producing only partisan arguments. On the other hand there was a vast amount of argument for intervention which was equally based on an exparte view, and took no account of the value of evidence. In general common sense and a reasonable regard for obvious objections were equally lacking on each side of the dispute. It was assumed by most debaters that if any one opposed intervention he sympathized with Bolshevism, and that if he favored it it was because he was more loyal to the existing order than those who were opposed. Thus for the persons who were opposed to Bolshevism, but were in doubt as to whether the policy pursued by the American and Allied governments was wise, there was very little of value in the whole discussion.

The press generally took sides without, apparently, giving any thought to the subject. The following from a leading newspaper is typical of the mental attitude of a large part of the press. Commenting on the official statement above-mentioned that the aggressive character of the Russian government justified the course of the Allies, the writer noted the fact that the Bolshevik government had repeatedly offered to give up its aggressive propaganda in other countries in return for peace, but added that Bolshevism was after all a missionary religion, and that Lenin while promising to suspend the revolutionary agitation in other countries, would not keep that promise longer than suited his convenience. This was the only point advanced by the writer against the contention that conciliation on the part of the Allies would check the spread of Bolshevism; that at least it would deprive the Bolsheviks of one argument which seemed to excuse their aggressive policy; that the spread of Bolshevism had not been checked by the Allied invasion of Russia; that in general the spread of unsound doctrine was not in the modern civilized world found to be most effectively restrained by violence, and that the spirit of the argument employed by the writer would logically lead, if put into practice, to war upon any country on the face of the earth whose social, political or religious views were objectionable to other states—in short, that one government was justified in attacking any other on the ground that it did not approve of its political or social creed, and that even if the other government agreed not to spread that creed outside of its dominions, it must be assumed that that government was lying.

The attitude of the interventionists in the United States is illustrated by the following summary: The advocates of an aggressive policy against Bolshevik Russia believed that the Bolsheviks were trying to make Esthonia dependent on their own government, and that they hoped to do so if their country were allowed to

trade with the west through Esthonia. There were advantages to both parties in such an arrangement, for Esthonia needed Russian trade while Russia needed the Baltic ports as an outlet for her commerce. Another proposal was that the Esthonian government should pardon all convicted Bolshevik propagandists or revolutionary agitators. This was said to mean that the Bolshevik agents in the future were to be left undisturbed in their work of propaganda. The interventionists complained that the Allies were doing nothing to relieve the situation. They said that the anti-Bolshevik elements in Russia were doing what they could to help the Bolsheviks. Kolchak had postponed recognition of the border states, saying that only the Russian Constituent Assembly when it meets can consent to the alienation of Russian territory. Kerensky had recognized Finland and Poland, but since then various anti-Bolshevik groups had not recognized any of the border states. Economic interests were likely to bring about a union between Bolshevik Russia and all of these border states, as soon as Russia returned to a settled condition. In the Ukraine even among those who favored political separation there was support of the plan for economic union with Russia. These border states were claiming political independence and the Bolsheviks were saying to the world that they agreed to this independence. On the other hand Kolchak postponed his answer and thus created distrust among these people, who naturally inclined to the more favorably disposed Bolsheviks. The interventionists while admitting that among the anti-Bolshevik groups there were some who really wanted to restore old Russia, asserted that there were many liberals among them who would be content with a federalism that would give self-government to the border peoples and even political independence. Those elements however did not convince the border states of their good-will. No aid was given to Yudenitch by the Esthonians because they feared that his victories would destroy their independence. In Ukraina Petlura was fighting against Denikin, chiefly for the reason that the latter's triumph would mean an end to Ukrainian independence. There were some vague promises of federalism held out by the liberal element among the anti-Bolsheviks, but even these were conditional upon the continued hostility on the part of the border states toward the Bolsheviks. Toward the end of December the interventionists recognized the unfavorable situation of the anti-Bolsheviks. Yudenitch had been completely defeated and Denikin was on the defensive. Kolchak as has already been said had lost almost everything that he had gained. Hence they argued that it was necessary for the anti-Bolsheviks to recognize the independence among these border people and thus win them away from the Bolsheviks. Interventionists were alarmed at the prospect of peace with Soviet Russia. M. Poska, Foreign Minister of Esthonia, was suspicious of any real sentiment in favor of peace on the part of Soviet Russian government. The Allies, it was argued could do much by promising definitely to aid the border states. In the first place they could give them economic aid for the moment, and in the second place they could help them in bringing about an agreement as to the policy to be followed toward Russia. The Secretary of State of the United States declared that the United

States did not want to see Russia dismembered. He said that any government recognized in the Ukraine would be an All-Russian government.

INDUSTRIAL CONDITIONS. Lenin's confession of inability to apply the principles of strict socialism to production was noted in the previous YEAR BOOK. Early in 1919 the policy of reversion to capitalistic methods was discernible, although it had not yet been practically applied on a large scale. For example, an official journal gave definite accounts of concessions to foreign bankers for railway building and for the exploitation of forests, and at the end of March the Moscow government decided to offer a concession to foreigners for the building of a canal connecting the Amu-Darya with the Caspian. Lenin had declared that the technical methods, but not the finance of capitalism would be resumed, meaning by this that the capitalistic system in regard to factory and workshop management would be introduced. In 1919 he published a pamphlet on the new tasks of the Soviet authority in which he called for severe industrial discipline, saying that while the workmen till then had been absolute masters of the factories, the interests of the revolution now required their submission to the will of the managers, for the time for strict communism was not ripe. He demanded the introduction of piece-work and the employment of specialists to whom high salaries would be paid. Trotzky also issued statements to the same effect in the newspapers. In the matter of the trade in food products, this change of policy was also observed. For example, a decree declared that freedom of trade was restored in all products except bread, salt, sugar, vegetable fats, and meat for army consumption, which continued to be state monopolies.

LENIN. The personality of Lenin was much discussed during the year and accounts of him appeared in rapid succession, all varying, however, with the sympathies of the writers. According to several accounts Lenin like other revolutionaries of former times was of noble family. His father was a counselor of state and he was a noble by hereditary right. His two sisters and two brothers were like himself possessed of revolutionary ideas and at one time were under police surveillance. His brother, Alexander, was executed for participation in a terrorist plot in 1887. Lenin was brought up in the orthodox faith and studied at the gymnasium of Simbirsk and the universities of Kazan and St. Petersburg, showing himself an excellent scholar. He was arrested as a Socialist and exiled to Siberia. He was set at liberty in 1900, and left Russia. From that time on he was prominent as one of the Socialist leaders and became well known in the meetings of Socialists, especially in the recent Conference of Zimmerwald. Apart from his theories his influence in the Bolshevik party was due to his extraordinary intelligence, iron will, indomitable courage, complete absence of selfish, material interests, and his wide acquaintances. He appeared to have absolute faith in his theories and absolute confidence in himself. In the country where so many persons were suspected of financial corruption his reputation for perfect honesty gained him powerful support. As to the severity of his measures he was characterized in the anti-Bolshevik press as extremely cruel, but in a different way from Trotsky and others who were accused of being either naturally ferocious or dominated by vengeful motives, for

his cruelty was not of a personal sort, but only the result of a ruthless resolve to do anything that would benefit the cause even if it involved the massacre of thousands. He was furthermore older than most of his colleagues and he held the position not only of dictator, but also of a sort of teacher.

RYE. The total yield of rye in 1919 as reported provisionally by the International Institute of Agriculture, Rome, for Spain, France, Italy, the Netherlands, Rumania, Switzerland, Canada and the United States was about 173,360,000 bushels which constituted nearly one-tenth of the world's production in normal times. The yield in 1919 of the countries mentioned was less by about 7,880,000 bushels, or 4.1 per cent, than the yield the preceding year but as compared with the average from 1913 to 1917 it showed an increase of approximately 31,500,000 bushels or 24 per cent. The yields by countries for the year were as follows: Spain 27,060,000 bushels, France 27,856,000 bushels, Italy 4,574,000 bushels, the Netherlands 14,068,000 bushels, Rumania 3,555,000 bushels, Switzerland 1,576,000 bushels and Canada 8,241,000 bushels. The yield of Bohemia was placed at 22,410,000 bushels.

The United States according to estimates by the Department of Agriculture produced 88,478,000 bushels on an area of 6,963,000 acres or at the rate of 12.7 bushels per acre. In 1918 the production was 91,041,000 bushels on 6,391,000 acres or at the rate of 14.2 bushels per acre while the average data for 1913 to 1917 inclusive showed a production of 50,001,000 bushels, an area of 3,151,000 acres and an average acre yield of 15.9 bushels. The larger crops of rye in 1918 and 1919 were the result of recommendations by the government for the purpose of increasing the supply of bread grains under the stress of war.

The average farm value of rye on Dec. 1, 1919 was 134.5 cents per bushel, or 17.1 cents under the corresponding value of the year before but 25.5 cents above the average price on that date for the five-year period 1913 to 1917. The total value of the crop based on these bushel values was \$119,041,000 in 1919, \$138,038,000 in 1918 and \$54,489,000 the average for the five-year period. The area sown to rye in the fall of 1919 was only 5,530,000 acres as compared with 7,232,000 acres sown for the 1919 crop but of which only 6,963,000 acres were harvested. All important rye-growing States reported reduced acreages and in North Dakota, the leading State, the area was reduced from 2,068,000 acres in 1919 to 972,000 acres sown for the crop of 1920.

The results of studies by the Missouri Agricultural Experiment Station on the cost of producing rye indicated an average cost of 82 cents per bushel for the years 1910 to 1917 inclusive. The crop at this rate paid the farmer \$4.05 for every 10 hours of labor spent on it.

SABINE, WALLACE CLEMENT WARE. Physicist, died at Boston, Mass., January 10. He took the lead in organizing the Lawrence Scientific School at Harvard, became its dean and was afterwards professor of physics in the university. He was born at Richwood, Ohio, June 13, 1868, studied at Ohio University and at Harvard, where he held the Morgan Fellowship and became an assistant in physics. He devoted himself so diligently to teaching that at first he

outbreak of the war he had been Prime Minister of Italy. He was born in the province of Apulia and entered Parliament at an early age. He there acquired reputation in the fields of finance and jurisprudence and he was under-secretary for finance in the Crispi ministry, 1893-1896; Minister of Agriculture, 1899-1900, and Prime Minister after the fall of Giolitti in 1913, holding that office during the first 18 months of the war. He maintained the policy of neutrality and was responsible for Italy's declaration of that policy at the beginning of August, 1914, but he also went forward under the changed conditions and was responsible for the declaration of war on Austria in May, 1915.

SALMON. See ALASKA.

SALOMAN, WILLIAM. American banker, died in New York City December 14th. He was born in Mobile, Ala., in 1852 of a well-known Jewish family and was educated in Philadelphia and New York. He entered the firm of Speyer and Company and became a partner. He afterwards retired and was for three years chairman of the board of directors of the Baltimore and Ohio railroad. Resigning that position in 1902 he founded the banking house which bears his name. He was a director of a large number of important corporations. The Americanization of foreigners always greatly interested him and he founded the Educational Alliance of which he was the treasurer for 15 years.

SALT. The total production of salt in the United States in 1918 was 7,238,744 short tons, an increase of 260,567 short tons, or 4 per cent, over the output in 1917. The total value was \$26,940,361, an increase of 30 per cent over the figure for 1917, which was \$19,940,442.

Rock salt production amounted to 1,683,941 short tons, an increase of about 5 per cent, valued at \$5,684,661; an increase of 46 per cent. The output of evaporated salt amounted to 2,724,203 short tons, valued at \$20,010,435, an increase of nearly 10 per cent in quantity and 34 per cent in value. The production of salt in brine was 2,830,600 short tons, valued at \$1,245,265, a decrease of 2 per cent in quantity, but an increase of 15 per cent in value.

Michigan, New York, and Ohio were first, second, and third, respectively, in quantity produced. See GEOLOGY.

SALVADOR. A Central American republic on the Pacific Coast to the east of Guatemala. Capital, San Salvador.

AREA AND POPULATION. The area is estimated at 8170 square miles and the population Jan. 1, 1917, at 1,287,722 of whom about two-thirds were Mestizos and about one-sixth Indians. In 1917 the births numbered 49,963 and the deaths 41,750. The population of the cities was estimated as follows: San Salvador, 65,148; Santa Ana, 58,820; San Miguel, 29,374. During the earthquake of June 7, 1917, the towns of Nejapa, Armenia, and Quelzaltepeque were destroyed. Primary instruction is free and compulsory. No later figures are available for education than those given in the preceding YEAR BOOK. According to a British authority the expenditure on public instruction in 1917 was £100,050. There is a national university at the capital with faculties of law, medicine, pharmacy, engineering, and dentistry.

PRODUCTION. Agriculture is the main occupation and the chief product is coffee, which in 1916 had an acreage of about 153,517 acres.

The crop of 1917 was damaged by the earthquake and volcanic eruption. Other products are corn, sugar cane, cotton, cacao, peanuts, yams, indigo, tobacco, rubber, and various vegetables. Large deposits of ore exist in the western part. One of the richest mining zones is the district of Metapan which produces copper, iron, lead, silver, nickel, and platinum. The ores are found near the surface and their richness increases with the depth. In parts of the zone there is an adequate supply of water power and the region is reached by a branch of the local railway and will later be crossed by the Pan-American Railway. Discoveries of gold and silver were also reported in 1919 as well as new oil fields which promised a considerable development.

COMMERCE. Trade is chiefly with the United States and Great Britain. In 1917 the United States supplied 62 per cent of the imports. Coffee makes up about nine-tenths of the total exports, amounting in 1917 to 36,253 metric tons, valued at 21,147,078 pesos silver.

RAILWAYS AND SHIPPING. The railway in operation in 1917 was recorded at 264 miles. In that year vessels entered at the ports of Salvador numbered 354 with a tonnage of 520,759.

FINANCE. The legal standard of value is silver. The silver peso rose in value from \$.42 in 1916 to \$.7234 at the beginning of 1918. The following account of the national receipts and expenditures from Jan. 1, 1910 to May 31, 1919, is supplied by the Pan-American Union on the basis of official reports: The receipts and expenditures amounted to 115,445,657 and 128,261,280 silver pesos respectively, showing a deficit of 12,815,623 pesos. The receipts were derived from the following sources: Import duties, 55,081,191 pesos; exports, 15,958,318 pesos; liquor revenue, 25,486,350.02 pesos; stamp papers and postage stamps, 3,766,018 pesos; direct taxes, 2,912,349 pesos; sundry services, 6,448,637 pesos; sundry incomes, 5,792,794 pesos; while the expenses were as follows: National assembly, 814,826 pesos; presidency of the Republic, 687,130; departments of government, 21,899,120; of public works, 14,170,723; of agriculture, 766,639; of foreign relations, 2,359,129; of justice, 6,447,020; of public instruction, 9,016,067; of public benefit, 6,186,178; of the treasury, 7,425,910; of public credit, 27,811,096; and of war, 30,677,440 pesos.

An addition to the budget was voted by the Assembly on September 12th. It provided for an increase in the revenue by 13,688,000 pesos, and of the expenditures by 13,687,146.

In September the Assembly declared the gold coinage of the United States legal tender.

GOVERNMENT. Legislative power is vested in a National Assembly consisting of a single chamber of 42 deputies elected by universal suffrage for one year and executive power in a president elected for four years. President in 1919, Carlos Melendez.

SALVATION ARMY. An organization for relief work in the United States, using the military system for control of its workers. During the year 1919 \$14,000,000 was subscribed through the Home Service Fund, a change in method of financing that has resulted in greatly increased efficiency of the army's machinery. Some of this money was used to pay off debts and also to provide much equipment that was badly needed. The army continued to perform with the American Fortes in Germany such welfare

and inspirational work as was conducted in 1918. Much of the war work adjacent to the permanent camps at home, which was originally considered as being but temporary, has so commended itself to the authorities as to require the placing of it upon a permanent basis. Child Welfare Work was carried forward in many institutions, the largest of which is the Lytton Springs Orphanage and Industrial Farm in California, where the child population was nearly 300. The international character of the organization assures to it abundant scope for its missionary zeal. There are 65 countries and colonies occupied by the army, many of them being heathen lands, where direct missionary work is possible.

In the army there were in 1919 about 1000 corps and outposts; 3000 officers and cadets; 300,000 meetings with an attendance of about 25,000,000 persons; 75 hotels scattered all over the United States with accommodations for 1,656,528; 92 industrial homes with accommodations for 2483; 11 slum posts and nurseries where about 50,000 children were sheltered; 25 rescue homes and maternity hospitals with accommodations for 486. Large numbers of Thanksgiving and Christmas dinners are provided every year to the poor in various cities. Evangeline C. Booth is the commandant of the United States forces, and her headquarters are in New York.

SALVEGO-RAGGI, Marquis. Italian representative at the Paris Peace Conference. He was an accomplished diplomat, having served in various embassies and acquired prominence as the Italian minister in China during the Boxer difficulties. He was ambassador in Paris after the resignation of Signor Tittoni.

SALZBURG. Before the disruption of the Austro-Hungarian Empire, a crownland of Austria, lying to the east and north of Tirol, and bordered on the north by Germany. Area, 2763 square miles; population according to the census of December, 1910, 214,737; estimated in 1913, 221,304. According to the census of 1910 the Austrian subjects numbered 208,562, of whom 99.73 per cent were German, and the Catholics formed 98.47 per cent of the population. Capital, Salzburg, with a population estimated in 1914 at 37,300. See AUSTRIA-HUNGARY.

SAMOA. A group of islands in the Pacific near latitude 14° south, of which the islands east of 171° east longitude have belonged to the United States since Feb. 13, 1900, and the islands to the west of that line belonged to Germany till shortly after the outbreak of the war in 1914, when they passed into the hands of New Zealand. The area of the latter group is variously estimated at from 990 to 1300 square miles with a population according to the census of 1917 of 41,128. See GERMAN SAMOA. The area of the American group is also variously estimated at from 77 to about 100 square miles, with a population according to the 1916 census of 7550. The chief island Tutuila (area 55 square miles) is mountainous, well wooded, and fertile, with a population (1916) 5885. The harbor at Pago-Pago on the southern coast of Tutuila is considered one of the best and safest in the South Seas and is an important naval station.

SAMOS. One of the Anatolian islands, formerly tributary to Turkey, but occupied by Greece before the end of the war and adminis-

tered through a Greek prefect. Area, about 181 square miles; population according to the provisional census of 1913, 68,949, of whom most were Greek Orthodox. Capital Vathy, with a population of about 8000.

SANDERSON, Sir PERCY. Formerly British consul-general at New York, died at Reading, England, July 14. He was born in London, July 7, 1842, entered the Indian military service, but retired in 1870, and was consul-general and later chargé d'affaires in Rumania for several years. He was consul-general at New York from 1894-1907.

SAN FRANCISCO. See MUNICIPAL OWNERSHIP and WATER-WORKS.

SANITATION. See GARBAGE AND REFUSE DISPOSAL; SEWERAGE AND SEWAGE TREATMENT; WATER-WORKS AND WATER PURIFICATION.

SANKEY REPORT. See INDUSTRIAL RECONSTRUCTION.

SANTO DOMINGO. See DOMINICAN REPUBLIC.

SÃO THOMÉ AND PRINCEPE. Two islands belonging to Portugal off the coast of French Equatorial Africa in the Gulf of Guinea near the equator about 125 miles from the mainland. Area, 363 square miles; population in 1914, 58,907, of whom 53,969 were in São Thomé. The whites numbered 1570. Chief products: Coffee, cacao, rubber and cinchona.

SARAWAK. A British protectorate comprising the northwestern part of the island of Borneo with an area of about 42,400 square miles and a population estimated at 600,000. Capital, Kuching, with about 25,000 inhabitants. In 1917 the imports were £775,769; exports, £1,027,454. Exports included rubber, pepper, sago flour, and gold. Shipping entered and cleared in 1917, 208,482 tons. The trade is chiefly with Singapore. The government was under the late Rajah Sir James Brooke, who was succeeded May 17, 1917 by his son, Charles Vyner Brooke. British Agent for Sarawak and British North Borneo, and high commissioner for Brunei at the beginning of 1919, Sir Arthur Henderson Young.

SARGENT, FREDERICK. Electrical engineer, died at Chicago, Ill., July 26. He was born in Cornwall, England, Nov. 11, 1859, and came to the United States in 1883. He was consulting engineer in Chicago after 1890. At the World's Fair (1893), he was manager of the mechanical and electrical departments.

SASKATCHEWAN. One of the Prairie Provinces of Canada, separated from Alberta on the west by the meridian of 110° west longitude and extending from Montana and North Dakota to the Northwest Territories, with Manitoba on the east. Capital, Regina. Estimated area, 251,700 square miles; population (1911), 492,432; estimated (1916), 647,835, of whom 471,673 were rural. Population of Regina (1916), 26,105. Lieutenant-Governor at the beginning of 1919, Richard S. Lake; Prime Minister, W. M. Martin. See CANADA.

SAVINGS BANKS. In the United States all savings banks are classified as commercial and government or postal. The commercial savings banks are divided into two classes, mutual and stock, the former being found almost exclusively in the Eastern States while the latter are most numerous in the West and South. The *Annual Report* of the Comptroller of the Currency showed that there were on June 30, 1919,

lessness of life. Morten Kamphøener's *Det slesvigske Regiment* (*The Sleswig Regiment*), is the story of Sleswig soldiers compelled to fight for the cause of their oppressors. Johannes V. Jensen's *Norne-Gæst* goes back to the saga period and gives a splendid picture of early humanity. Among collections of short stories may be mentioned Sophus Michaëlis's *Træbukken* (*The Wooden Horse*).

SCIENCE, LITERARY CRITICISM, ETC. In *To Essays om vor Erkendelse* (*Two Essays on Perception*), Herbert Iversen discusses the psychological philosophical aspects of "validity" and "time." Georg Brandes's *Cajus Julius Cæsar* shows a very keen appreciation of Cæsar and his contemporaries, as well as a thorough understanding of Roman institutions of the time. Regmor Stampe's book on *H. C. Andersen* makes particularly clear this author's relations to his surroundings. In *Nordboer* (*Northerners*), Vilhelm Andersen attempts to characterize and differentiate the literary tendencies of the three northern countries. Frederik Poulsen's *Oraklet i Delfi* (*The Oracle at Delphi*), treats in a very exhaustive and scholarly manner of the significance of the oracle in Greek civilization.

NORWEGIAN. *Fiction*. The central idea of Katharina Gjesdahl's *Porcelansduken* (*The China Doll*), is class consciousness. The heroine, who belongs to an official family living in isolation breaks the traditions of the house by marrying into the family of a well to do merchant. Lilly Heber's *Det dages* (*Dawning*), gives artistic expression to the idea of a development of the soul after death. The work contains beautiful thoughts, but these are not always well organized. In his story *Henrik Srane* Vebli Vislie pictures the conflict between orthodoxy and the higher criticism. The rationalism of the hero, who is a minister, causes his estrangement from his wife and his congregation, and finally ends in his downfall. In Olav Duun's *Jurikingar* we are made to feel how secret powers fight an old family until all the strength of its past generations seems collected in one of its youngest members. As usual, Duun gives us a highly concentrated narration. Hans E. Kinck's *Sneeskavlen brast* (*The Snow Shovel Broke*), a study in the life of the common people, is a novel executed along exceptionally broad lines. The psychology and milieu are particularly good.

SCIENCE, LITERARY CRITICISM, ETC. Gerhard Gran and Albert Dresder each gave us a book on *Henrik Ibsen*. Dresder's book, which is particularly good, is almost a translation of the German book which the author wrote a few years ago. The purpose of Edv. Lehmann's *Stedet og vejen* (*The Place and the Way*), is to show how the Jewish, heathen, and Christian civilization have gone through the same stages of development. Of great importance to Landsmaal literature is Arne Garborg's translation of Homer's *Odyssey*. In many of its passages we feel the spirit and power of the Edda.

SWEDISH. *Drama*. Per Hallström wrote two plays, *Karl XI*, and *Gustaf III*, both of which have good historical atmosphere, yet the problems presented remind us of the present. Ernst Bredberg contributed *Furstor* (*Princes*), and Tom Forssner *Den stora donationen* (*The Big Donation*).

POETRY. Swedish literature suffered a loss by the death of Oscar Stjerne, whose *Lovsanger*

och andra dikter (*Songs of Praise and Other Poems*), were issued during the year. Although these poems were written during the illness of the author, they are pervaded with a strain of optimism. They are marked, as is the author's poetry in general, by the influence of Fröding. Bertel Gripenberg has probably never shown as strong lyric power as in his *Under fanan* (*Under the Flag*), a volume inspired by the civil war in Finland in the spring of 1918. Johan Nordling's *Samlad låga* (*Centred Flame*), is a volume of lyrics which show a wealth of feeling combined with rare powers of description. Like a voice from the past came E. N. Söderberg's *Vårreflexer och höstdazrar* (*Spring Images and Autumn Lights*). Söderberg belongs to the idealistic school of the sixties and seventies and reminds us somewhat of Wirsén. Among volumes written by Swedish poets in America may be mentioned Aron Ingvall's *Till vänskapen* (*To Friendship*), which is full of sentiment and pervaded with an optimistic idealism.

FICTION. Selma Lagerlöf's *Bannlyst* (*Under the Ban*), is written in the same vein as *The Emperor of Portugallia*. Henning Berger in *Järntrappan* (*The Iron Stair Case*), gave us a specimen of novel of adventure, a genre rare in contemporary Swedish literature. In *Aa-Hanna* Elin Wägner also struck out in a new direction—the naturalistic delineation of common people. The theme of Sven Lidman's *Huset med de gamla fröknarna* (*The House with the Spinsters*), is the value of memories and traditions. Hjalmar Bergman's *En döds memoarer* (*The Diary of a Dead Man*), pictures the helplessness of man and his dependence on conditions. In Martin Koch's *Anteckningar från havet* (*Notes from the Sea*), we notice the author's usual admiration for the laborers, this time the toilers on the sea shore.

LITERARY CRITICISM, ETC. Johan Mortensen's *Från Röda Rummet till sekelskiftet* (*From "The Red Room" to the End of the Century*), treats the naturalistic and symbolistic literature of Sweden, with particular reference to Strindberg as the exponent of naturalism. Anton Blanck's *Geijers götiska diktning* (*Geijer's Gothic Writings*), touches on the different influences and movements that affected Geijer, treating especially his journey to England and its results. In *Det levande förflutna* (*The Living Past*), Johan Landquist gave us a number of essays on authors and institutions. Martin Nilsson's *Olympen* (*The Olympus*), is an exposition of classical mythology containing many original theories.

SCHAEFFER, NATHAN C. State superintendent of education of Pennsylvania, died at Lancaster, Pa., March 15. He was born in Berks County, Pa., Feb. 13, 1849, and graduated at Franklin and Marshall College, Pa., 1867; studied in the Theological Seminary of the Reformed Church and at German universities. From 1875 to 1877 he was on the teaching staff of Franklin and Marshall College, and from 1877 to 1893 he was principal of the Keystone State Normal School. He held the office of State Superintendent of Public Instruction in Pennsylvania from 1893 to the time of his death. During that time he held important educational and religious positions and wrote *Thinking and Learning to Think*, (1900), and *History of Education in Pennsylvania*. After 1893 he was editor of the *Pennsylvania School Journal* and he

also edited *Bible Readings for Schools*, (1897). He contributed widely to educational and theological journals.

SCHAUFFLER, ADOLPH FREDERICK. Clergyman, died in New York City, Feb. 18. He was born at Constantinople, Turkey, Nov. 7, 1845, graduated at Williams College, 1867, and studied at Union and Andover Theological Seminaries; ordained to the Congregational ministry, 1871. After holding pastorates in Brookfield, Mass., and New York City, he was superintendent of the New York City Mission Tract Society, 1887-1902, and after that president of the New York City Mission. He wrote *Ways of Working*, (1891); *The Teacher, the Child and the Book*, (1900); *The Pastor as Leader of Sunday School Forces*, (1903); *Sparks from a Superintendent's Handbook*, (1909).

SCHERMERHORN, FREDERICK AUGUSTUS. Capitalist, died in New York City, March 20. He was born in New York City, Nov. 1, 1844; served with distinction in the New York volunteers in the Civil War. He was trustee of important educational and art institutions.

SCHILLIG, OTTILIE. See MUSIC, Artists, Vocalists.

SCHIRMER, RUDOLPH E. One of the foremost American music-publishers, died at Santa Barbara, Cal., on August 20. He was born in New York, July 22, 1859. After graduation from Princeton University, in 1880, he entered the Columbia Law School, and was admitted to the bar in 1884. The next year he entered the firm of G. Schirmer, founded by his father in 1861, and after the latter's death became president of the corporation in 1893. During his administration branches were established in Boston (The Boston Music Co.) and London (G. Schirmer, Ltd.), and the famous Schirmer Library of Musical Classics was begun in 1894. In 1915 appeared the first number of *The Musical Quarterly*, which numbers among its contributors the most famous writers on music in Europe and America, and occupies a unique position among musical periodicals published in the United States. When the Institute of Musical Art was founded, in 1905, Mr. Schirmer presented it with the extensive Schirmer Circulating Library. Throughout his career he was the champion of the American composer, whose ambition he stimulated through the publication, without expectation of adequate financial returns, of works in the larger forms. Besides, he built up a successful book-business through the publication of important books dealing with the theory and history of music. At the time of his death the catalog of the house comprised over 28,000 numbers.

SCHMIDLAPP, JACOB GODFREY. American banker and philanthropist, died in New York City, December 18. He was born at Piqua, Ohio, Sept. 7, 1849, and was engaged in the cigar and whiskey business in Memphis 1868-74. He removed to Cincinnati in 1874, where he organized the Export Storage Company and the Union Savings Bank and Trust Company. He was president or director of a large number of important financial institutions and a member of many bodies for the improvement of social conditions. He gave large sums for the education of children and was owner of model tenements in Cincinnati.

SCHMITZ, ROBERT. See MUSIC, Artists, Instrumentalists.

SCHNITZER, GERMAINE. See MUSIC, Artists, Instrumentalists.

SCHOHARIE DEVELOPMENT of CATSKILL AQUEDUCT. See AQUEDUCT.

SCHOLARSHIPS. See UNIVERSITIES AND COLLEGES.

SCHOOLS. See EDUCATION.

SCHREINER, WILLIAM PHILIP. Former Prime Minister of Cape Colony, died in London, England, June 28. He was born in Cape Colony in 1857 (a brother of Olive Schreiner, the authoress), educated at Cape University and Cambridge, England. In 1893 he was a member of the second Rhodes ministry. He was twice attorney-general. After long service in the provincial legislative assembly he was senator in the Union of South Africa, 1910-14. He was prime minister of Cape Colony, 1898-1900. In 1914 he was made High Commissioner in England for the Union of South Africa.

SCOTLAND. A division of the United Kingdom comprising the northern part of the island of Great Britain with adjacent isles. Area, 30,405 square miles, of which the land area is 29,796. Population (census of Apr. 2, 1911), 4,760,904; estimated in 1918 (civilian), 4,886,300. See GREAT BRITAIN.

SCOTT-GATTY, Sir ALFRED. An English composer, died at London, in March. He was born at Ecclesfield Vicarage, York, Apr. 26, 1847. He was especially known for his musical plays for children. He also wrote several hundred songs.

SCULPTURE. See PAINTING AND SCULPTURE.

SEALS. See ALASKA.

SEATTLE, WASH. See MUNICIPAL OWNERSHIP, and STRIKES AND LOCKOUTS.

SEISMOLOGY. See EARTHQUAKES.

SELANGOR. See FEDERATED MALAY STATES.

SENEGAL. See FRENCH WEST AFRICA.

SERBIA. A Balkan kingdom which in December, 1918, was proclaimed a part of the new unitary state of Serbs, Croats, and Slovenes (see JUGO-SLAVIA). It is separated from Hungary by the Danube and the Save and bordered by Bulgaria on the east, Albania and Montenegro on the west, and Greece on the south. Capital, Belgrade. See *Government* below.

AREA AND POPULATION. The area is given as 33,891 square miles. No later figures for population are available than those given in preceding YEAR BOOKS. The total estimated population in 1911 was 4,615,567. These estimates apply to the period between the close of the Balkan wars and the beginning of the War of the Nations and include the territory acquired by the Treaty of Bucharest (July 25, 1913), namely parts of Saloniki, Monastir, and Kossovo, with a total area of 15,241 square miles, and a total population of 1,703,866. Belgrade in 1911 had a population estimated at 90,890; Nish, 24,949; Kragujevat, 18,452; Leskovatz, 14,266. Greek Orthodox is the state religion and in Old Serbia 2,881,220 out of the 2,957,207 inhabitants were reported in 1911 as of that faith.

RESOURCES, ETC. The resources are mainly agricultural, and the prevailing land tenure is that of peasant proprietorship. Of the total area, 21 per cent is reported as arable. Before the war fruit products formed 13 per cent of the exports. Forests cover 6.3 per cent of the surface and the state-owned forests in 1916

done on government account and with government assistance. Consequently the armistice and the general discussion of the government shipping policy, as well as the question of the disposal of vessels ordered during the war, naturally occasioned considerable uncertainty as to the future of shipbuilding. Eight months after the armistice was signed about 100,000 gross tons of steel vessels for foreign trade were

gross tons for foreign owners, a total of 1882 vessels of 2,721,281 gross tons. Of the 1919 output, 916 vessels of 3,569,824 gross tons were built of steel, an increase of 434 vessels and 1,699,465 gross tons over 1918.

The accompanying tables of vessels built and officially numbered in the United States in 1919 was reported by the Bureau of Navigation, Department of Commerce:

Kinds	Atlantic and Gulf		Pacific		Great Lakes		Western rivers		Total	
	No.	Gross	No.	Gross	No.	Gross	No.	Gross	No.	Gross
Wood										
Sailing	97	102,559	6	9,736	1	1,946	..	.....	104	114,241
Steam	119	178,607	85	221,952	34	9,732	15	1,886	253	412,177
Gas	381	27,245	294	27,584	66	1,151	83	1,508	824	57,486
Unrigged	136	52,028	68	6,852	8	785	29	498	241	60,163
Total	733	360,439	453	266,124	109	13,614	127	3,890	1,422	644,067
Metal										
Sailing	4	6,653	..	.....	..	.....	..	.....	4	6,653
Steam	*394	1,848,230	197	1,174,743	212	508,574	5	1,507	808	3,533,054
Gas	12	4,877	..	.....	7	74	2	44	21	4,995
Unrigged	†41	12,142	1	848	‡38	10,969	3	1,663	83	25,122
Total	451	1,871,902	198	1,175,091	257	519,617	10	3,214	916	3,569,824
Totals										
Sailing	101	109,212	6	9,736	1	1,946	..	.....	108	120,894
Steam	513	2,026,837	282	1,396,695	246	518,306	20	3,393	1,061	3,945,231
Gas	393	32,122	294	27,584	73	1,225	85	1,550	845	62,481
Unrigged	177	64,170	69	7,200	46	11,754	32	2,161	324	85,285
Grand total...	1,184	2,232,341	651	1,441,215	366	533,231	137	7,104	2,338	4,213,891

* Includes 4 vessels of 10,635 gross tons built of reinforced concrete.

† Includes 11 vessels of 3,356 gross tons built of reinforced concrete.

‡ Includes 7 vessels of 2,133 gross tons built of reinforced concrete.

under order on private account in American shipyards, but this amount began to increase reaching 350,000 tons by October, 550,000 tons by November, and approaching 1,000,000 tons at the end of the year. This construction was entirely for American account and was important as nearly filling the deficiency caused by the reduction in the building programme of the Shipping Board. Much of this private construction, in fact almost 50 per cent, consisted of tankers which the Shipping Board had not ordered as liberally as the cargo vessels. The quality of American ships turned out after the armistice was shown by the fact that of 600 steamers built in the United States under the inspection of Lloyds Register, all received the highest possible rating.

Labor costs were high in American yards so that there was an advantage for Great Britain but builders in that country had their yards full of orders and could not assure deliveries within two or three years. On the other hand the organization and equipment of American yards had been planned with respect to rapid construction and this was designed to figure in the competition for business. American costs were coming down and American labor was becoming more efficient.

During the calendar year 1919 private American shipyards built 2338 merchant vessels of 4,213,891 gross tons, which were officially numbered for American shipowners, and accordingly either were in trade or about to engage in trade at the end of the year. American shipbuilders also built 25 vessels of 44,250 gross tons for foreign owners, making a total output of 2363 vessels of 4,258,141 gross tons for the 12 months. In comparison with these figures it may be stated that during the calendar year 1918 the corresponding output was 1834 vessels of 2,622,588 gross tons for American and 48 vessels of 98,693

The United States Shipping Board made a report on the American shipbuilding industry in 1919 which indicated that a production had been attained never before reached or even hoped for in the United States. This report stated that the statistics of production would bear out the most optimistic statements made when the shipping programme was launched shortly after the beginning of the war with Germany.

According to statistics for the year ended December 31st, total deliveries aggregated 6,229,323 dead weight tons. Of this total 4,838,673 was composed of steel vessels and 1,338,650 represented the wooden tonnage.

DELIVERIES FOR 1919

	Number	D. W. tons
Steel	741	4,838,673
Composite	13	42,000
Wood	403	1,338,650
Concrete	3	10,000
Total	1,159	6,229,323

During the year 1919 tonnage was delivered by the Emergency Fleet Corporation at the following rate:

1919—	No. of ships	Deadweight tons
January	27	163,400
February	40	241,150
March	44	254,172
April	108	543,690
May	137	787,450
June	119	587,358
July	130	694,328
August	132	707,175
September	146	791,553
October	118	595,833
November	90	485,170
December	77	507,541
Total	1,168	6,358,823

These figures being compiled later than those in the foregoing paragraph show slight discrepancies but indicate the rate of delivery during the year. Deliveries for the preceding years were as follows:

	<i>Ships Deadweight</i>	
1917	49	302,115
1918	538	3,029,506

The maximum yearly construction prior to the organization of the Emergency Fleet Corporation was approximately 875,000 deadweight, but the average from 1910 to 1917 was approximately 425,000 deadweight per year.

The record of the Emergency Fleet Corporation for its entire activities was considered even more striking and may be briefly recapitulated. Since the work was first begun in 1917 ships had been delivered amounting to 9,557,444 dead weight tons, while 10,892,440 tons had been launched. Keels had been laid for 2216 vessels of 13,055,161 tons. Ships delivered to the end of 1919 numbered 1740.

The following summary gives a survey of the whole shipbuilding activities.

KEELS LAID

	<i>Number</i>	<i>D. W. tons</i>
Steel	1,637	11,014,461
Composite	18	63,000
Wood	594	1,904,200
Concrete	12	73,500
Total	2,216	13,055,161

LAUNCHED

	<i>Number</i>	<i>D. W. tons</i>
Steel	1,379	8,941,740
Composite	18	63,000
Wood	571	1,851,700
Concrete	7	85,000
Total	1,975	10,892,440

DELIVERED

	<i>Number</i>	<i>D. W. tons</i>
Steel	1,200	7,717,394
Composite	18	63,000
Wood	519	1,767,050
Concrete	3	10,000
Total	1,740	9,557,444

According to Lloyd's Register the total tonnage launched during 1919 was 7,144,549 tons gross, the greatest amount on record. These figures showed an increase of 1,697,000 tons as compared with 1918 and 3,811,000 tons as compared with the pre-war record year of 1913. The vessels launched in the United States in 1919 aggregating 4,075,385 tons gross equalled 57 per cent of the world's output. The record of the United Kingdom, 1,620,442 tons gross, was 272,422 tons more than in 1918, but still nearly 16 per cent below the record year of 1913. The output outside of the United Kingdom, namely 5,524,107 tons, was more than three and one-third times the output of the United Kingdom, while in 1913, the last complete year before the war, the United Kingdom total was actually 35 per cent more than the total launched abroad.

The production of tonnage in Great Britain during the past year was less than in 1918. However, it must be remembered that British yards were engaged in reconditioning the vast

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fleet of ships, after their war service, and this effectually prevented the shipbuilders from giving their undivided effort to the building of vessels. Harland & Wolff lead in the year's output, with 28 ships, aggregating 186,061 gross tons. Workman, Clark & Co. of Belfast ranked second, with 13 ships of 87,636 tons, and Swan, Hunter & Wigham Richardson third, with 19 ships and 72,240 tons.

British builders concentrated upon cargo ships, although a few liners were carried over from the war period. In December the Beardmore yard launched the Anchor liner *Cameronia*, which was laid down after the signing of the armistice.

According to the returns of Lloyd's Register the shipping under construction throughout the world on December 31 aggregated 2138 vessels of a total of 7,861,363 gross tons. The British total was stated as 757 vessels, of 2,994,249 gross tons, and the American as 647 vessels of 2,966,515 tons, indicating that Great Britain had under construction at the end of the year slightly more than the United States.

Lloyd's Register compared the British building with that of 1918 as follows (figures in gross tons):

	<i>Dec. 31, 1919</i>	<i>Dec. 31, 1918</i>
<i>Steam—</i>		
Steel	2,980,938	1,975,962
Ferro-concrete	1,700	.....
Wood and composite	2,502	1,240
Total	2,985,140	1,977,202
<i>Sail—</i>		
Steel	3,888	2,750
Ferro-concrete	5,571	.....
Wood and composite	150	.....
Total	9,109	2,750
Total steam and sail	2,994,249	1,979,952

The size of the vessels under construction in the United Kingdom was summarized as follows:

	<i>Number</i>	
<i>Gross tonnage—</i>	<i>Steam</i>	<i>Sail</i>
100 and under 500 tons	141	15
500 and under 1,000 tons	76	8
1,000 and under 2,000 tons	68	..
2,000 and under 3,000 tons	63	..
3,000 and under 4,000 tons	61	..
4,000 and under 5,000 tons	40	..
5,000 and under 6,000 tons	112	..
6,000 and under 8,000 tons	77	..
8,000 and under 10,000 tons	41	..
10,000 and under 12,000 tons	9	..
12,000 and under 15,000 tons	24	..
15,000 and under 20,000 tons	18	..
20,000 and under 25,000 tons	4	..
25,000 and under 30,000 tons	..	..
30,000 and under 40,000 tons	..	..
40,000 tons and above	..	..
Total	734	23

The following details were given of new work and launchings in Great Britain during the quarter ended Dec. 31, 1919 (in gross tons):

	<i>Gross tonnage</i>	
	<i>Steam</i>	<i>Sail</i>
Vessels commenced	601,572	2,060
Vessels launched	461,915	7,439

The total of merchant vessels being built outside of the United Kingdom on December 31st according to the quarterly return of Lloyd's Register is as follows:

	No.	Gross tonnage
United States	647	2,966,515
British dominions	113	251,480
Belgium	8	26,293
China	10	35,700
Denmark	56	100,335
France	65	216,775
Greece	2	1,500
Holland	126	328,938
Italy (including Trieste)	125	314,547
Japan	64	309,474
Norway	61	92,719
Portugal	9	5,210
Spain	28	107,468
Sweden	67	110,795
Total	1,381	4,867,114

The tonnage being built in the world at the end of December, under the inspection of the Surveyors of Lloyd's Register, excluding vessels, the construction of which has not actually commenced, and excluding all vessels of less than 100 tons, amounts to 4,775,346 tons.

On the above basis the tonnage building in the United Kingdom exceeded by 27,732 tons that under construction in the United States, where the decrease in the building of new tonnage amounts to as much as 504,000 tons, compared with the figures for September. This was the first time since this country became a shipbuilder on a large scale that British ship yards showed signs of regaining their former supremacy.

The largest increase in British shipbuilding was at the Tyne yards, in which more than 500,000 tons were under construction. The tonnage building in the United Kingdom at the end of December showed an increase of more than 177,000 tons, compared with that of September, although it fell short more than 60,000 tons of the figures for the June quarter.

Lloyd's figures of ship construction on Dec. 31, 1919 showing that British yards then had under construction about 30,000 gross tons more than American ones were however disputed in the United States. Three months previously, according to the same authority, the United States was building 653,000 gross tons more than Great Britain. In the intervening three months the total of all merchant shipping building for the United States had decreased 504,000 gross tons, while that of Great Britain had increased 177,000 tons. It was in this period, according to the British figures, that the British yards caught up with the American. Lloyd's figures were said to disagree not only in regard to total tonnage of all types, but as to tonnage of the various types.

According to Lloyd's, the total of all types of tonnage building for the two countries at the end of 1919 was:

	Gross tons
Great Britain	2,994,249
United States	2,966,515
British lead	27,734

Figures supplied by the United States Shipping Board showed that the total being constructed for the Board was 3,223,072 deadweight tons, the equivalent of 2,148,714 gross tons. Adding to this latter figure the total of 977,488 gross tons building to private order in American

yards at the same date, as shown by a summary prepared by the Atlantic Coast Shipbuilders' Association from the records of Lloyd's Register and the American Bureau of Shipping, the American aggregate was 3,126,202 tons, and instead of a British lead the situation is shown to be:

	Gross tons
United States	3,126,202
Great Britain	2,994,249
American lead	131,953

These figures, as indicated, were for all types of tonnage. While the United States had turned out a large volume of wooden vessels in the past few years, British output of this description was practically negligible. Accordingly more interest attaches to the comparative estimates as of steel tonnage under construction. Figures in this respect were widely at variance with the American records, as the following tables show. Lloyd's gives the aggregate of steel shipping under construction for the two countries on December 31st as:

	Gross tons
Great Britain	2,991,597
United States	2,662,992
British lead	328,605

The Shipping Board reports that the steel ships under construction for its account totaled 3,118,872 deadweight tons, the equivalent of 2,079,248 gross tons. The 977,488 gross tons reported building in the United States for private account on the same date represented steel ships only, making the aggregate of steel vessels under construction here, according to the American estimate, 3,056,736 gross tons.

AMERICAN BUREAU OF SHIPPING. The great expansion in American shipping led to an active attempt during the year to have the United States government officially recognize the American Classification Society, American Bureau of Shipping, just as the British government official had recognized Lloyds and France the Bureau Veritas. Accordingly such a bill was introduced into Congress during the year 1919.

This bill which seemed likely of early passage provided "That for the classification of vessels of the United States, and for such other purposes as are the proper functions of a classification bureau, all departments of the government and all commissions created by the government are hereby directed to recognize the American Bureau of Shipping as their agency, so long as the American Bureau of Shipping continues to be maintained as an organization which has no capital stock and pays no dividends: Provided, That the Secretary of Commerce and the chairman of the Shipping Board shall each appoint one representative who shall represent the government upon the executive committee of the American Bureau of Shipping, and the bureau shall agree that these representatives shall be accepted by them as active members of such committee. Such representatives of the government shall serve without any compensation, excepting necessary traveling expenses: Provided further. That the official list of merchant vessels published by the government shall hereafter con-

tain a notation clearly indicating all vessels classed by the American Bureau of Shipping."

WORLD'S SHIPBUILDING IN 1919. The official returns of the world's shipbuilding for 1919 compiled by Lloyd's Register are given in the accompanying tabulation:

were the *Cameronia*, 16,000 tons; *Oropesa*, 14,000 tons, and the *San Fernando*, 13,056 tons. The tonnage launched during 1919 for the carriage of oil in bulk consisted of 22 steamers of 126,388 tons. The British returns also included 53 vessels of 32,467 tons built of reinforced

Countries	Steamers and motor vessels		Sailing vessels and barges		Total	
	No.	Gross tonnage	No.	Gross tonnage		
United States:						
Atlantic Coast	362	1,797,862	46	82,289	66	88,041
Gulf ports	32	187,605	84	74,327	18	28,732
Pacific Coast	184	1,108,012	50	123,941	51	128,954
Great Lakes	199	495,559	..	.....	..	.....
British dominions:						
Canada						
Great Lakes	28	60,233	..	.....	..	.....
Coast	24	93,070	80	86,328	69	31,633
Other dominions	26	69,923	12	9,257	24	8,284
Belgium	2	2,433	..	.....	..	.....
China	6	10,750	1	1,187	..	.....
Denmark	21	31,430	11	3,355	14	2,981
France	19	28,268	3	1,331	12	3,067
Holland	100	137,086	..	.....	..	.....
Italy (including Trieste)	15	77,125	7	2,857	10	2,731
Japan	133	611,883	..	.....	..	.....
Norway	37	40,196	45	17,882	..	.....
Portugal	..	..	1	450	19	10,049
Spain	22	48,018	7	1,707	12	2,884
Sweden	29	43,128	17	6,626	7	1,217
Other countries	..	..	1	147	4	1,339
Total	1,239	4,792,578	315	411,134	306	309,912
					†1,871	5,524,107

* Including 10 vessels of 20,455 tons built of reinforced concrete. † Includes 11 steel sailing vessels of 10,483 gross tons. By countries they were: China 2, of 420 tons; United States 9, of 11,063 gross tons.

It will appear from the table that the United States led Great Britain and all other nations in the launching of tonnage during 1919, the figures showing that 57 per cent of the world's shipping was produced in American yards. The United States launched 1051 vessels, aggregating 4,075,385 gross tons. Great Britain had a total of 612 vessels, aggregating 1,620,442 tons. Japan and Canada ranked next. The Japanese yards turned out 133 steel vessels with a gross register of 611,883 tons. Holland launched a greater number of ships, but Canada produced a greater tonnage.

BRITISH SHIPBUILDING. From the accompanying tabulation it will appear that the output of the United Kingdom was 1,620,442 tons gross, which does not include war vessels. This was 272,322 tons more than in 1918, but was still nearly 16 per cent below the record year of 1913. In 1919 62 steamers, each of 6000 tons and upward were launched of which 4 were of over 10,000 tons each. The largest was the *Arundel Castle*, of 22,150 tons, launched at Belfast for the Union-Castle Line. The next largest vessels

concrete, 102 trawlers and a large number of vessels designed for Channel, coasting and other special services. The average tonnage of steamers launched in the United Kingdom during 1919 was 2930 tons, but if steamers of less than 500 tons be excluded the average reached 4006 tons, compared with 4593 in 1918, 4933 in 1917, 4080 in 1916, 3791 in 1915 and 4460 in 1914. The launches for the year included 17 steamers with a total tonnage of 148,188 tons which were to be fitted with steam turbines and five vessels of 32,936 tons which were to have Diesel engines. The four largest vessels mentioned above were all to be fitted with geared turbines. The largest Diesel engined vessel launched during the year was of 6980 tons. The output of the United Kingdom could be divided as follows: On the Clyde, 525,747 tons; on the Northeast Coast, 716,295 tons; at Belfast, 213,720 tons, and at all other ports together, 164,680 tons. This is shown in more detail in the table.

The British shipbuilding returns for 1919 as recorded by *Lloyd's Register* were as follows:

District	No.	Steamers	Barges	Total		
		Tons (gross)	No.	Tons (gross)	No. Tons (gross)	
Aberdeen	23	8,862	1	710	24	9,572
Barrow, Maryport, and Workington	4	8,282	1	710	5	8,992
Belfast and Londonderry	30	208,986	7	4,734	37	213,720
Dundee	10	15,198	..	..	10	15,198
Clyde—Glasgow	127	335,450	9	1,580	136	337,030
—Greenock	54	185,877	4	2,840	58	188,717
Hartlepool	20	82,233	..	..	20	82,233
Hull	48	20,326	..	..	48	20,326
Leith	14	20,300	..	..	14	20,300
Liverpool	15	36,155	4	2,010	19	38,165
Middlesbro, Stockton, and Whitby	86	119,943	..	..	86	119,943
Newcastle	64	239,836	..	..	64	239,836
Sunderland	64	274,283	..	..	64	274,283
Other districts	32	29,189	45	22,938	77	52,127
Total	541	1,584,920	71	35,522	612	1,620,442

SHIPPING. No economic or political question was of greater significance during 1919 than the question of providing for ocean commerce and the restoration of trade as well as its furtherance and development in new fields and by new methods. In the new era following the great world war it was inevitable that there should be a greater interrelation of the world's commercial interests than ever, and every prospect of greater competition in the world's markets where a large and efficient mercantile marine would be an important and possibly a predominating influence. Consequently in 1919 the building and operation of ships, which was a military necessity during the war became an equally vital matter in peace. The question of SHIPBUILDING (q.v.) has already been discussed, but the questions of operation and fundamental policy were no less important. Interest centred in large measure in the merchant marine of Great Britain and the United States, as these countries were considered already to have begun a friendly rivalry with important results to the world's commerce and politics. It may be said here, however, that in all the maritime countries internal and industrial conditions had their effect on shipping and shipping problems. Strikes that curtailed production and shipments affected cargo, dock handler's strikes, and other labor difficulties prevented loading and caused delay, while various policies, governmental and political, all reacted on shipping. In January the U. S. Shipping Board ordered all requisitioned ships except those needed by the War and Navy Departments returned to their owners, but this policy was delayed in its full execution until May, as these craft were employed in moving foodstuffs to the suffering peoples of Europe, and it was stated that more than 2,000,000 tons dead weight were employed in such relief work. The ships then turned back were altered from troop carrying to their original commercial functions, this reconditioning being an important work in the United States as also in Great Britain. Freight rates dropped from war time prices, but they were much above those of the former days of peace, and private owners reaped rich returns in the active business.

The ships built and owned by the United States government were allocated to various American operators who received a percentage of the gross freights for their services in management and operation. To do this there were formed a number of shipping companies, to whom an income was assured without requiring heavy capital or financial risks.

During the year the transportation of coal from America was an important item and succeeded the shipments of food supplies. With the shortage of fuel in Europe, due to strikes and especially to reduced production in British mines, and the small or entirely failing output in France and Belgium, not to mention Italy and Scandinavia, the coal situation became acute, and there resulted traffic unprecedented, for example over one million tons were shipped in September and October. America had ample wares in addition for export to Europe, South America, Asia, and elsewhere, so that shipping was in active demand and well and profitably employed.

High ocean freights continued during the year. These were affected by port troubles, in-

cluding strikes, congestion, and also by the increasing cost of coal and labor. A ton of British shipping, according to British ship owners, performed approximately but half the service that it did five years previously, and there was great congestion at various British ports with much idle shipping. Other reasons for high ocean freights in Great Britain were labor troubles, increased cost of ships, higher insurance values and higher cost of repairs and maintenance, increases in officers' and seamen's wages, heavier bills for food and ship stores, higher dock dues and higher prices for bunker coal. Before the war coal could be obtained in Great Britain for \$3.65 to \$4.87 per ton. At the end of 1919, bunker coal cost \$17.08 to \$26.77 per ton, the average price for five British ports being \$22 per ton. Wages had increased more than 100 per cent, and where once it was possible to construct in Great Britain a vessel for from \$24 to \$29 per ton, for 1919 the same vessel cost \$146 per ton.

STRIKES AFFECTING SHIPPING. American shipping in 1919 was seriously affected by labor troubles which were felt in their remote as well as immediate consequences. The harbor boatmen at the port of New York left their employment from March 4th to April 17th, and for 19 days in July there was a walkout of both officers and unlicensed personnel on vessels in the Atlantic and Gulf Coasts, resulting in increased wages of 10 per cent. In October, some 140,000 longshoremen at Atlantic and Gulf Ports took part in an unauthorized strike which caused nearly 700 vessels to remain idle from three to six weeks. In this strike the steamship operators were successful and the longshoremen returned to work. About this time came the coal strike which prevented the exportation of coal.

U. S. SHIPPING BOARD PERSONNEL. On account of changes in personnel and reorganization the work of the Shipping Board was hampered in a measure during the year and it was criticized for lack of fixed policies. Among the more important resignations were Chairman Edward N. Hurley, Commissioners Charles R. Page, Henry M. Robinson, Director of the Division of Operations J. H. Rosseter, Vice-President Charles E. Piez, head of the Emergency Fleet Corporation; Vice-President John E. Barber, in charge of the Ship Sales Division, and Frank E. Ferris, managing agent, New York. John Barton Payne became chairman and reorganization and retrenchment was the keynote of the incoming administration. While it was considered necessary to reduce the organization which was large and expensive, at the same time the work of the board suffered as well as the interests of the shipping companies.

LEGISLATION. Congress did not settle on any fixed policy for the merchant marine and there was little legislation bearing on the subject. One bill was passed which sought to place American tonnage on a parity with ships of foreign register and repealed the emergency measure, which permitted foreign vessels to ply in coast-wise services.

The first American passenger service to Germany was inaugurated on December 20th when the *Manchuria*, owned by the International Mercantile Marine Company, sailing under the flag of the American Line, cleared for Hamburg with a record transatlantic mail and general cargo, in-

cluding 25 first-class passengers. The *Manchuria* was to be followed by her sister ship *Mongolia*, which sunk the first German submarine destroyed by gun fire directed by a crew aboard an American steamship, and a regular service was to be maintained between New York and Germany.

TOTAL AMERICAN SHIPPING. The total listed American shipping on Dec. 31, 1919 as reported by the Bureau of Navigation of the Department of Commerce, was 28,731 vessels of 15,441,786 gross tons. At the beginning of the current fiscal year on July 1, 1919, there were seagoing ships numbered 2058 of 7,300,022 gross tons, of which the United States government represented by the Shipping Board owned 982 of 3,827,201 gross tons, or 52 per cent, while on January 1, 1919, American listed seagoing ships of 1000 gross tons or over numbered 1663 of 5,656,856 gross tons, of which the government, represented by the Shipping Board, owned 608 of 2,303,015 gross tons, or 41 per cent of the tonnage. During the calendar year 1919 American registered enrolled and licensed tonnage increased from 11,261,444 gross tons to 15,325,000, of which increase nearly all was of seagoing ships of 1000 gross tons or over, and of this increase 3,637,777 gross tons were owned by the Shipping Board and had been built with appropriations by Congress. Up to June 30, 1919, the expenditures of the construction division of the Shipping Board aggregated \$2,512,692,000, of which \$1,741,997,945 were expended during the fiscal year ending June 30, 1919, or at the rate of about \$150,000,000 a month.

Studying the complete returns for the first quarter of the fiscal year 1919-1920 ending Sept. 30, 1919, it would be found that the distribution of tonnage registered for the foreign trade and enrolled or licensed (small vessels) for domestic trade and the additions made during the three months ended December 31st, would be as follows:

	Sept. 30, 1919		Following three months' increase	
	No.	Gross tons	No.	Gross tons
Registered	5,347	7,860,070	315	1,190,344
Enrolled	12,752	6,178,998	106	70,187
Licensed	10,023	135,520	188	6,757
Total mer. marine.	28,122	14,174,588	609	1,267,288

During the following three months ending December 31st, the seagoing ships of 1000 gross tons or over increased 250 of 1,101,692 gross tons. Seagoing ships of 1000 gross tons or over on December 31st, numbered 2584 of 9,588,787 gross tons, of which the United States government, represented by the Shipping Board, owned 1465 of 5,940,742 gross tons, or 62 per cent.

The value of exports of the United States carried in American ships, including the Great Lakes, during the year ending June 30, 1919, was \$1,617,234,923, and for the two years ending June 30, 1919, was \$2,594,953,852.

GREAT LAKES SHIPPING. According to the annual report of the Lake Carrier's Association there was a generally unsatisfactory season during 1919 for its fleet of 385 ships.

The uncertainty in the steel trade in the early spring soon after the opening of navigation commenced the season inauspiciously and this was followed by almost all known elements

antagonistic to favorable operations. According to the report the strike of ore and coal handlers occurring simultaneously with the shopmen's strike, followed by the steel workers' and miners' walkouts, served to check the movement of coal and ore during the greater part of the season; the longshoremen's strike, which choked export elevators, reflected upon the fall grain movement, and, as a climax, the final month of navigation was marked by a severity of weather unprecedented in a score of years, the report stated.

On the statistical side the report gives the total net tonnage for the season as 91,500,000, against 114,000,000 during 1918. In only two of the last seven years, 1914 and 1915, was the total lower than in 1919. There was a decrease in ore shipments from 1918 of approximately 14,000,000 tons with a total of 47,177,395. Coal shipments declined 6,000,000 tons to 26,424,068, and embargoes at the seaboard reduced the total grain tonnage by half a million, the season's total being 6,091,703. Movement of stone, another of the principal cargoes, fell off nearly a million tons from 1918, to a total of 6,407,285.

The fleet of the Lake Carrier's Association, which at the beginning of the season, consisted of 1,982,830 tons, lost 16 vessels through sales, withdrawals from membership or destruction by the elements.

INCREASE IN SEAMEN. Along with the increase in the number and tonnage of American ships came an increase in the number of seamen. The total number of masters, officers and men required to man the registered, enrolled and licensed vessels of the United States, including 1450 documented yachts and aggregating 15,325,000 gross tons, on December 31st, was 266,000.

In the list of merchant vessels of the United States for June 30, 1919, the number of crew, excluding master, of the 29,600 vessels and yachts included in the list was figured. Adding the master for each vessel, the totals were as follows: Steam vessels, 156,114; motor vessels, 42,941; sail vessels, 24,672; unriggered vessels, 11,425; total, 235,152. The new vessels documented during the year after the list went to press required masters, officers and men aggregating about 31,000, thus making a total of about 266,000.

Salt water tonnage at the end of 1919 was three-fourths the total American tonnage, but as it included the larger ships with relatively small crews in proportion to tonnage, the total number required to man salt-water ships was estimated at about 175,000. On June 30, 1915, the total number of masters, officers and men required for American merchant vessels and yachts was 187,921, of whom 60,354 were required for sea going ships. These figures showing the great growth in American shipping may be compared with those of Great Britain for 1914 when the number of masters, officers and men employed on 12,486 merchant vessels of England, aggregating 20,300,000 gross tons, was 295,652, of whom 210,672 were employed on 3941 steamers in the foreign trade.

AUSTRALIAN GOVERNMENT OPERATION. An interesting example of state operation of shipping was to be found in Australia where the gross earnings of the Commonwealth Line of steamers (exclusive of ex-enemy vessels) during the fi-

States. During the war hides and calfskins were used for local needs and the army. The yearly production of bristles has been about 50,000 poods. Before the war this article was sent to Irbit, Nizhni, or Moscow, where it was purchased assorted, and then sent to exterior markets. About 50,000 poods of horsehair was produced yearly. Before the war it was sent by Siberian merchants to Irbit, Nizhni, or Moscow, where it was sold to exporters. The fur trade before the war was chiefly in German hands. Local merchants worked with Leipzig directly or through their Moscow agents. The following furs are collected in this government: Squirrel, white fox, red fox, ermine, kolinsky, sable (light and medium), light fitch, wolverine, wolf, bear, lynx, river otter, and white hare. Timber is not exported but is used only for local needs. Cedar is sometimes sent to Petrograd in planks. Local timber mills are quite small and primitive, but during the war a big timber mill was constructed at Maklakovo, near Yeniseisk. Cedar, fir, pine, larch, and birch are available. In December, 1917, Siberia was proclaimed an independent republic with its capital at Tomsk, and on Nov. 18, 1918, Admiral Kolchak was made Supreme Governor at Vladivostok. For an account of the false reports of this and other anti-Bolshevist governments and their final collapse in 1919, see RUSSIA and WAR OF THE NATIONS.

SIBERIAN OCEAN. See POLAR RESEARCH, ARCTIC.

SIDGREAVES, WALTER. Director of the Stonyhurst College Observatory, died June 12; well known for his work in stellar spectroscopy. He was educated at Stonyhurst College and was professor of physics there for 25 years. He served in several expeditions for astronomical observation and received exhibition gold medals for his work in stellar photography.

SIERRE LEONE. A British colony and protectorate on the west coast of Africa, bounded by Siberia on the east and French Guinea on the north. The colony proper has an area of about 4000 square miles and a population (1911) of 75,572, of whom 702 were whites. Chief town, Freetown, with a population (1911) of 34,090. Area of protectorate, 27,000 square miles; population (1911), 1,327,560. Chief exports: Palm kernels, kola nuts, and palm oil. Chief imports: Cotton manufactures, tobacco, coal, and spirits. Exports of palm kernels were valued in 1917 at £842,508; kola nuts, £321,105; palm oil, £62,375. Statistics for trade and finance for successive years follow:

	1914	1915	1916	1917
	£	£	£	£
Imports	1,405,049	1,255,755	1,290,817	1,332,752
Exports	1,250,478	1,254,621	1,233,544	1,497,995
Revenue	675,689	504,424	551,106	546,449
Expend.	680,146	546,771	532,940	512,844
Shipping*	2,780,118	1,635,119	1,553,312	1,526,640

* Tonnage entered and cleared.

SILESIA. The name of a division of the Austro-Hungarian monarchy and also of a province of Prussia before the defeat of the Central Powers, and the readjustment under the Treaty; final distribution of its territory undetermined at the close of 1919. The former was a crownland of Austria with an area of 1988 square miles, and a population at the census of Dec. 31, 1910, of 756,949, of whom Austrian subjects

numbered 741,456, distributed according to vernacular as follows: German, 43.90 per cent; Polish, 31.72; Bohemian, Moravian, and Slovak, 24.33. Catholics were placed at 84.52 per cent of the total population. Capital, Troppau, with a population (1910) of 50,762. It joined Bohemia, Slovakia, and Moravia in forming the new Czecho-Slovak state which came into existence Oct. 21, 1918. The Prussian province of Silesia is the largest of the divisions of Prussia, the area being 15,573 square miles, and the population (1910), 5,225,962. Capital, Breslau. See CZECHO-SLOVAKIA; AUSTRIA-HUNGARY; and WAR OF THE NATIONS.

SILK. The silk industry in 1919 presented special conditions of its own, and reflected economic and financial phases affecting the commercial world generally in the effort to restore itself to normal or peace conditions. With a commodity produced in large measure in one continent and consumed or manufactured in another, it was but natural that the vicissitudes of foreign exchange should affect prices and shipments. Likewise, in 1919 there was a shortage of the world's crop, quite a natural and immediate consequence of a great war, and also an increased consumption in manufacturing based on the extraordinary demands for silk products in the United States and the countries not affected by the war, and by the attempts of European manufacturers, including those of Germany and Austria, to resume their former activity. As a single indication of changes in the industry it might be mentioned that Japan in 1919 was acquiring high-power looms and modern equipment for her factories, and was manufacturing 100 per cent more silk than a few years previously.

Naturally, raw silk as well as the finished silk industry reflected the universal high prices due to increased cost of labor, shortened hours of employment, and deficiencies of transportation, along with the consumption of stocks and the decreased crop for the year, which, not only in the case of Italy and France, but also in Japan, was from 30 to 40 per cent below normal. The effect of such conditions on prices may readily be realized, even if the speculative elements, of which there were some in the Eastern markets, are neglected. Prices started somewhat weak in January, but soon hardened, and there was an increase up to nearly the end of the year. Thus, in the Yokohama market early in January Kansai No. 1 was quoted at 1500 yen, and Sinshui No. 1 at 1480 yen; at the end of the year Sinshui No. 1 was quoted at 3430 yen. Regarding prices in the New York Market, it may be said that Sinshui No. 1 sold at \$6.65 a pound on January 1st, and at \$14.20 a pound at the end of the year. In other words, the leading grades increased in price at New York during 1919 from \$6 to \$7 a pound, to \$14 to \$15 a pound. New York quotations for important grades at the end of the year were as follows:

Japanese	
Filature Kansai Double Extra Cracks	\$14.65
Filature Kansai Extra 18/15	14.45
Filature Best No. 1 Extra 13/15	14.35
Filature Best No. 1	11.50
Filature Kansai No. 1 13/15	14.25
Filature Sinshui No. 1 13/15	14.20
6 months' basis.	
Chinese	
Canton XXA, Crack, 14/16	10.40
Canton XXB, Crack, 14/16	10.00
Canton XXB, 22/26	9.50

Extra Classicals	14.00
Best Classicals	13.50

These were higher prices, the world over, than ever before, with the possible exception of 1876 when there was a period of inflation due to the failure of the world's silk crop. Furthermore, after 1919 a serious shortage was anticipated.

The world's silk crop of 1919, in comparison with two previous years, was estimated as follows:

	1919 Kilos	1918 Kilos	1917 Kilos
Europe			
Italy	2,280,000	2,695,000	2,820,000
France	200,000	240,000	205,000
Spain	70,000	75,000	70,000
Austria-Hungary	100,000	150,000	150,000
Total (Europe)	2,650,000	3,160,000	3,245,000
Levant and Asia			
Minor	500,000	1,040,000	1,040,000
Asia			
Japan	14,000,000	14,250,000	15,445,000
China	4,500,000	4,650,000	4,580,000
Canton	2,350,000	1,875,000	2,345,000
India	100,000	115,000	110,000
Grand Total..	24,100,000	25,090,000	26,765,000

As will appear from the tables, raw silk comes to the United States chiefly from Japan, China, and Italy, and during the calendar years 1918, 1917 and 1916, the imports were as follows:

From.	1918 Pounds	1917 Pounds	1916 Pounds
Italy	5,503	149,347	1,534,990
France	3,872	15,839	105,993
Japan	27,074,811	29,396,022	24,375,173
China	5,750,902	6,934,418	6,366,635
Other Countries ..	30,365	7,205	71,949
	32,865,453	36,502,831	32,454,740

Of the 1918 total 14,901,911 pounds were imported in the first six months and 17,963,642 pounds in the second half of the year.

In the 10 months ending October, 1919, Japan alone supplied to the United States \$194,600,000 worth of raw silk out of the \$251,000,000 worth imported in the 10 months ending with October; China, \$45,000,000 worth; Italy, \$11,000,000; while the total from all other countries was less than \$1,000,000 value.

Total imports of raw silk into the United States during the fiscal year 1918-19 and earlier years were as follows:

	1918-1919 Pounds	1917-1918 Pounds	1916-1917 Pounds
Italian Silk		12,568	572,400
Japan Silk	28,395,447	30,249,585	26,633,900
Canton Silk	1,954,091	2,530,615	2,116,900
China Silk	3,332,400	2,873,070	2,987,400
Tussah Silk	520,734	913,950	1,218,400
Totals	34,202,672	36,579,788	33,529,000

In 1919 American manufacturers of silk were compelled to pay higher prices for raw silk from abroad, than in any preceding year. Nevertheless, the value of imports of raw silk was the largest on record, according to a careful estimate made late in the year by the National City Bank. The value of the raw silk imported into the United States in the calendar year 1919 exceeded \$300,000,000, against \$180,000,000 in 1918, \$156,

000,000 in the fiscal year 1917 and \$120,000,000 in the fiscal year 1916, the first fiscal year in which it crossed the hundred million dollar line. These figures apply to "raw silk as reeled from the cocoons" and do not include "waste silk," which would probably add about \$12,000,000 to the grand total. The quantity imported, even at the high prices, was greater than in any earlier year. The price of raw silk imported was the highest ever recorded, averaging \$8.42 per pound in October, as against an average of \$3 per pound in the fiscal year 1915.

The silk industry in the United States in 1919 was marked not only by prosperity and profits, but by the greatest volume of business ever experienced, all the way from mill to retailer. In fact, it was estimated that the production of American silk mills would amount in value at the factory to approximately \$750,000,000, as compared with \$250,000,000 in the census year 1914. In both broad silks and ribbons there was an unprecedented and constant demand. Along with higher prices went greater yardage and with a purchasing public eager and well supplied with money to buy, the demand for all grades of material was such as to put silk back on the luxury list, which it had for a time left, as fabrics and knitted articles came within the command of the average person. Subsequent to the Armistice there was a demand for increased mill capacity, and many buildings convenient to silk mills were altered and used, rather than wait for the erection of entirely new structures (see TEXTILE MANUFACTURING). There were apparently well justified criticisms of lack of efficiency in the operation of many American mills, but under the great profits secured it was possible to ignore faulty conditions in many cases. At the end of the year mills and selling agents had disposed of their stocks well into the future, and it was estimated that the output of the industry had reached a point where the people of the United States were buying manufactures of silk at a rate of over \$1,000,000,000 a year.

The exports of silk dress goods from the United States in the calendar year 1918 went to more than 50 different countries and colonies, even including the great silk manufacturing countries of Great Britain and France, with smaller quantities, comparatively, to Italy, Japan, and China; while exports of silk wearing apparel went to more than 20 countries. Canada was the largest purchaser of silk dress goods, with a total of nearly \$7,487,000; Argentina, \$450,000; Mexico, \$353,000; Australia, \$313,000; Italy, \$236,000; Cuba, \$215,000; Great Britain, \$59,000; and France, \$30,000.

The total exportation in 1909 of silk manufactures made from silk brought from the opposite side of the globe amounted to less than \$1,000,000, increasing to \$2,000,000 in 1912, \$5,250,000 in 1916, \$7,250,000 in 1917, over \$12,000,000 in the fiscal year 1918, and was estimated at approximately \$25,000,000 for the calendar year 1919. These figures of silk manufactures exported do not include those of artificial silk, which amounted during the calendar year 1919 to nearly \$10,000,000.

During 1919 German silk manufacturers were active, and while they realized that competition in some fields would be difficult if not impossible, yet they recognized that in other fields they had a good opportunity, and in England, where they planned to do a large business, France was con-

silver dollar so melted or broken up. The sales of such bullion were to be made at such prices not less than one dollar per ounce of silver, 100 per cent fine, and upon such terms and under such requirements as shall be established from time to time by the Secretary of the Treasury. Representative McFadden's bill also provided for reducing the standard of fineness for silver coins, and for permitting the use of copper alone, as well as copper or silver in the alloy of the gold coinage.

The council for the London Chamber of Commerce late in November recommended that in view of the price of silver and the possible disappearance of silver currency, the government should prepare and have ready for issue when required a nickel coinage of the lower denominations instead of issuing notes of a lower value than five shillings. This action was taken in view of the necessity of adequate currency and the loss to the government when it purchased silver at more than coinage value and permitted unscrupulous persons to hoard up coins and sell the bullion at corresponding profit. The plan was understood to involve, not the issuing of nickel coins similar to those of the United States, where 25 per cent nickel is alloyed with 75 per cent copper, which would afford in the case of the British coins too heavy a piece, but to make a new alloy, consisting of 60 per cent silver, 22½ per cent nickel and 17½ per cent zinc, which would provide coins of approximately the same size, though with rather less than two-thirds of the face value, on the basis of November, 1919, prices of silver.

See NICKEL.

SIMMONS COLLEGE. A non-sectarian institution for the education of women, founded in 1899 at Boston, Mass. The enrollment for the summer session was 246, for the fall the registration for regular courses was 1251, while the total registration was 1342. The faculty numbers 133; of these 19 are new this year. The library contains approximately 30,000 volumes. The endowment funds as of June 30, 1919, amounted to \$2,425,771; the income for the same period was \$241,464. The courses of study comprise household economics, secretarial work, public health nursing, library science, social work, etc. President, Henry Lefavour, Ph.D., LL.D.

SIMONS, JAMES. Lawyer and newspaper owner, died at Charleston, S. C., July 4. He was born at that city Nov. 30, 1839, educated at South Carolina college and at Leipsic. He served in the Confederate army in the Civil War. After 1894 he was president of the Charleston *Courier* and he was the speaker of the South Carolina House of Representatives, 1882-90. After 1898 he was president of the Society of the Cincinnati in South Carolina.

SIMPSON, ALBERT B. American clergyman, died at Nyack, N. Y., October 30. He was one of the chief evangelists of the time and an important figure in foreign missions. He was born in Canada, Dec. 15, 1844, educated at Knox College, Toronto, and ordained to the Presbyterian ministry in 1865. He held pastorates at Hamilton, Ontario, 1865-74, Louisville, Ky., 1874-81, and after 1881 in New York City. In 1887 he founded the Christian Alliance, which was combined with the International Missionary Alliance 10 years later under the name of the Christian Missionary Alliance, and from that

time was president and general superintendent. He did a notable work in the raising of relief funds for the poor and in sending out large numbers of foreign missionaries. He maintained a Missionary Training Institute and other institutions at Nyack, and was pastor of the Gospel Tabernacle in New York City, for which he raised large sums, on certain occasions \$50,000 or more at a single meeting. His effectiveness as an evangelist was remarkable and his religious activities in other fields covered a wide range, including the editorship of religious periodicals and the authorship of numerous books of which the following may be mentioned: *The Gospel of the Kingdom*, (1893); *Outlook on Missionary Lands*, (1897); *The Holy Spirit in the Old and New Testaments*, (1899); *Christ in the Bible*, (16 volumes, 1902-09); *Echoes of the New Creation*, (1903); *The Cross of Jesus*, (1910); *We Would See Jesus* (1910); *When the Comforter Came*, (1911); *The Old Faith and the New Gospel*, (1911); *Christ Life*, (1911).

SINGAPORE. See STRAITS SETTLEMENTS.

SINGH, Sir GANGA, Maharajah of Bikaner. Representative of British India at the Paris Peace Conference. He had a long record of war service, having served in China, Egypt, France, and Asia Minor. In 1917 he was the first Indian prince admitted to the Imperial War Conference and Cabinet, and his speeches at that time on the subject of reform in India made a deep impression.

SINHA, Sir SATYENDRA PRASSANO. Representative of British India at the Paris Peace Conference. He was brought up in humble circumstances in an Indian village, but succeeded by hard work in securing the means to study for the bar in England. He rose rapidly in his career and was the first Indian to be appointed advocate-general of Bengal. In 1910 he became a member of the provincial executive council. He was also the first Indian to hold an important judicial office. In the Imperial War Conference and the War Cabinet of 1917 he was a member in association with the Maharajah of Bikaner. In the beginning of 1919 he was chosen under-secretary for India.

SINN FEIN. See GREAT BRITAIN, *History*.

SKATING. The skating season in 1919 was greatly handicapped by the open winter and the fact that the Federal government objected to the use of ammonia by the artificial ice rinks. No national championships were contested. Charles Jewtraw of Lake Placid made the best showing in the Eastern championships, winning the 220 yard, half mile, and three-mile events. Joe Moore won the mile and three-mile Metropolitan titles. The feature of the 1920 season will be the races between Robert McLean, world's champion, and Oscar Mathiesen of Sweden which are to be held in Sweden.

SLAVONIA. See CROATIA AND SLAVONIA.

SLEEPING SICKNESS. This term has been applied to several entirely different diseases in which continuous somnolence is the leading symptom. In two of these the incidence is epidemic, but the sleeping sickness of South Africa, the virus of which is transmitted only by certain species of flies, is an exotic and local malady which need not concern us. The sleeping sickness which is of interest to the public in Europe and the United States breaks out at long intervals and fortunately is not widely spread. It is known technically as leth-

argic encephalitis (or inflammation of the brain) and its nearest of kin among diseases are the cerebral lesions which are seen rarely in influenza and the cerebral form of infantile paralysis. In fact its similarity to these twin evils is what makes it dreaded because of the suggestion that it might diffuse itself like those maladies on a large scale. Thus far, however, it has claimed few victims and many of these recover. In Switzerland at a time when the disease had not yet visited that country the medical men were keenly watching for its first appearance, but the disease eluded their vigilance and the first patient to be attacked suffered apparently from tuberculous meningitis, a not uncommon and fatal affection. Only during the autopsy was the nature of the case recognized. In order to prove the correctness of the diagnosis in the absence of a sure criterion Dr. Muller-Bergalone, the pathologist, had to exclude from consideration every other form of brain inflammation, which he was able to do with the exception of the cerebral form of infantile paralysis, with which it apparently coincided. But there were not at the time any cases of the latter affection in the vicinity nor had any been seen. Moreover the spinal cord was not in the least affected and while an exclusive localization of infantile paralysis in the brain has been seen, it is very uncommon and probably would never occur save in the midst of a large epidemic when great individual variation is to be expected. There is no certain way of recognizing the disease which causes infantile paralysis—i.e., no specific germ or serum reaction—but it seems safe to assert that despite these close resemblances the two diseases have nothing in common.

SLIFER, HIRAM JOSEPH. Civil engineer, died in Chicago, Ill., February 3. He was born at Colman, Pa., Oct. 12, 1857, entered the railway service and became a superintendent of division, general manager and consulting engineer successively of several important systems.

SMITH, HERBERT H. Naturalist, died March 22 in a railroad accident. He was born at Manlius, N. Y., Jan. 21, 1851; studied at Cornell University 1868-72 and in 1874 pursued researches in the fauna of the Amazonian regions of Brazil and afterwards wrote a series of articles for American magazines. The result of his travels was a volume on Brazil, the Amazons and the Coast, (1879). He pursued further scientific researches in Brazil, traveled extensively 1881-86, and got together an important series of specimens which he bestowed upon museums. It was estimated that he had collected some 200,000 specimens representing about 30,000 species. From 1890 to 1895 he spent much of his time in making collections in Trinidad and the Windward Islands and he gave the results to the British Museum. He contributed largely to encyclopedias and dictionaries within his field of research. For an appreciation of his work see the article in *Science* by Mr. W. F. Holland.

SMITH COLLEGE. A non-sectarian institution for the education of women, founded in 1871 at Northampton, Mass. In the fall of 1919 there were enrolled 2011 students, and there were 190 members of the teaching faculty. The productive funds of the institution amount to \$2,255,412 and the income for the year was \$114,542. The library contains 77,233 volumes. This

year is the first during which examinations for admission have been required for all subjects. President, William Allan Neilson, Ph.D., LL.D.

SMITHSONIAN INSTITUTION. This institution was founded in 1846 by act of Congress, as result to the bequest of James Smithson of England, who left his property to the United States of America "to found at Washington an establishment for the increase and diffusion of knowledge among men." The business of the Institution is conducted by the Board of Regents composed of the Vice-President, the Chief Justice of the United States, three members of the Senate, three members of the House of Representatives, and six other persons outside of those offices. According to secretary's report for the year ending June 30, 1919, the total permanent funds were \$1,074,794.36. The income for the year amounted to \$144,100.53 which added to the cash balance of \$1,289.90, made a total of \$145,390.43. Disbursements, \$595,000.

Expeditions were carried on in the Canadian Rockies, the Middle Atlantic States, and French Congo. In the latter place, Mr. R. L. Garner collected many specimens of apes which were shipped to the National Museum in Washington. Shortly before the close of the fiscal year a collecting expedition to Africa was organized under the direction of Edmund Heller and in conjunction with the Universal Film Manufacturing Co. This expedition is to plunge into the interior of the continent to collect animals, plants, and other material for uses in comparison in working up the collections made in Africa by Col. Theodore Roosevelt, Paul Rainey, and others. Dr. J. N. Rose spent three months making botanical collections in Ecuador, obtaining 6000 botanical specimens, 100 jars of fruit seeds and plant products, a number of wood specimens, and samples of bark. Mr. Philip A. Means conducted archeological investigations in Peru and Bolivia. The following is quoted from his report: "Two of the least known places visited were Maranga and Pando. They are very close together, and about six miles northwest of Lima. In its prime, Maranga had four fine terraces, with a spacious terreplein at the top. At the bottom the pyramid is about 450 feet square and the summit terreplein is about 250 feet by 350. The material of construction is adobe. This pyramid is probably of Inca construction; it is much like the Inca-built Temple of the Sun at Pachacamac and has yielded many Inca artifacts."

On Jan. 29, 1919, a bill was introduced in the House of Representatives by Congressman F. C. Hicks, providing for the erection of a museum of history and of the arts as a memorial to Theodore Roosevelt. It was intended that the proposed museum should contain the extensive collections already in the National Museum of relics and mementoes of illustrious patriots of our country and of the events conspicuous in its history. The bill provided that such a building would be administered by the Regents of the Smithsonian Institution. The matter was not acted on at the time.

The Institution and its branches issued during the year 98 volumes and separate pamphlets. The total distribution was 161,288 copies. The number of accessions during the year which were added to the library of the Institution totaled 7502 making a grand total of over half a million titles. The total number of acces-

placed on the repression of prostitution and prompt long continued treatment of persons infected. In the medical field, the activities of State boards of health have been the outstanding feature in social hygiene during the year, and it appears that the venereal diseases are now an integral part of the programme of practically every health department.

EDUCATION. The State boards of health have carried on an immense amount of educational work which has been reinforced by the U. S. Public Health Service, the American Social Hygiene Association, and many other voluntary organizations. Funds were provided by the U. S. Interdepartmental Social Hygiene Board to permit the establishment of reinforcement of departments of hygiene in more than 30 normal schools and State universities in which sex hygiene is to be taught in relation to other branches of the subject. A million employees in 60,000 industrial plants have been reached by a special industrial programme, while many boys have been shown a "Keeping Fit" exhibit prepared by the U. S. Public Health Service and circulated by the State boards of health. Motion pictures, newspaper advertising, sermons, lectures, and other means of publicity have been widely used. In addition, about 5,000,000 men received detailed information about social hygiene through the army and navy. Few attempts have been made to teach hygiene in the schools, the general opinion being that it is the duty of parents to give such information.

RECREATION. The need of wholesome recreation as a means of prophylaxis against the abuses of sex has won general recognition, and the activities of social service organizations in this field have been invaluable.*

ABROAD. Both Great Britain and Canada established ministries of public health during the past year and created bureaus in them for combating venereal diseases. The programme they are following is in general similar to that of the United States. In France there has been considerable agitation, but it has not yet crystallized into any new action. Japan has begun efforts to limit the number of prostitutes. An association headed by Count Okuma was organized to work for social hygiene. The new republic of Poland established a strong bureau of social hygiene and began educational and medical work, as did Czecho-Slovakia and Hungary. In Australia social hygiene was made a part of the "Strength of Empire" movement.

SOCIAL INSURANCE. The theory of social insurance has been more and more widely accepted since it was originally inaugurated in Germany in the year 1881. Under social insurance, provision is made to distribute economically among many, the losses resulting from the hazards of modern industry, which would otherwise fall crushingly upon a very few. At the present time many forms of social insurance are established in the industrial countries of the world: workmen's compensation, old-age pensions, health (or sickness) insurance, including maternity insurance, unemployment insurance, widows' and orphans' insurance (in the United States known as mothers' pensions)—all of these have been in operation long enough so that their

effectiveness may be appraised. The first two are treated under separate headings in this volume; the others will be discussed in the present article:—

HEALTH INSURANCE. Certain diseases can be traced as resulting directly from the conditions of work existing in various industries; these are known as occupational diseases (q.v.), and in many countries such diseases are taken care of under the workmen's compensation laws (q.v.). However most sickness cannot be clearly and directly traced to an industry, and yet the costs to society are the same. Accordingly, health insurance has been widely adopted in order that the risk may be equitably distributed. Two forms have been established—compulsory health insurance, and voluntary health insurance with a state subsidy. The first system exists in Germany, Austria, Hungary, Luxemburg, Norway, Serbia, Great Britain, Roumania, Russia, the Netherlands, and Sweden; it is compulsory also in Italy for railroad workers, and in France for miners and seamen. The system of voluntary health insurance supplemented by state subsidized insurance is found in France, Switzerland, Belgium, Denmark, New Zealand, and Sweden. In practice it tends toward the obligatory form; in France, Italy, and Denmark it is required in certain occupations, and Sweden and certain cantons of Switzerland have recently placed obligatory systems upon their statute books. The only countries of importance that cling to entirely voluntary health insurance without government subsidy are Turkey, Bulgaria, Greece, Albania, Montenegro, Spain, Portugal, and the United States.

During the past few years there has been a growing interest in the United States in the project of health insurance. Reports of the draft boards showed that over one-third of the young men of the country were physically unfit for military service; it has been pointed out that sickness causes seven times as much appeal to charity as industrial accidents; that approximately one-third of those too ill to work receive no medical care; that every year 15,000 mothers die from causes connected with childbirth, and that 250,000 infants succumb during the first year of their lives; that the degenerative diseases are everywhere tending to increase rather than diminish.

All of these facts have forcibly pointed to the need for action, and many social scientists and social workers have suggested a system of workmen's health insurance as the most logical means of attempting a solution. A number of States have appointed official investigating committees to look into the question, but unfortunately nothing has as yet crystallized into actual legislation. The past year has witnessed unusual interest in certain quarters. A bill passed the New York State Senate with the full support of the State federation of labor and scores of civic organizations, which sought to provide for sick wage-earners and their dependents full medical attention for 26 weeks in any year, and special maternity care for insured women and the wives of insured men. Cash benefit, in order not to interfere with trade union and fraternal benefit funds, was set at 66⅔ per cent of wages, but in no case more than \$8 per week. A burial benefit of \$100 was included. The expense of these benefits was to be met by equal contributions from employers and workmen; administra-

* The most active organizations in this field have been the War Camp Community Service and the Playground Recreation Association of America. See both of these organizations.

tion was in the hands of local mutual funds democratically managed by representatives of both sides, under supervision of the State industrial commission. After passing the Senate, the health insurance measure, together with legislation providing for a minimum wage and an eight-hour day for women and children in industry, was killed in the Assembly by the action of Speaker Sweet and the Rules Committee, who blocked further progress and forced an adjournment. This action was denounced most emphatically by the entire metropolitan press, and supporters of the bills declared that next year they would be revived and public opinion would be invoked to secure their passage.

During 1919, five State commissions which had been appointed to investigate health insurance rendered their reports. The Ohio commission recommended the adoption of a system of compulsory health insurance in that State providing for cash benefits, medical care, opportunity for physical restoration, and vocational reeducation to guard the workers from (1) loss of wages, (2) cost of medical care, and (3) loss of earning power. The Wisconsin Special Committee on Social Insurance rendered its report in January, in which it found that "a careful study of the subject, in the light of economic and social conditions in Wisconsin, has led the committee to the conclusion that the acceptance of compulsory health insurance is neither practicable nor feasible at this time." This decision was based upon the ground that there seemed to be no urgent demand for such legislation in the State. The committee recommended that existing agencies for the prevention of sickness be extended and improved, and that occupational diseases be included in the workmen's compensation act. A minority report recommended the adoption of compulsory health insurance. The Health Insurance Commission of Pennsylvania also reported in January. The commission was handicapped by the fact that only \$5000 had been appropriated for its work, and it contented itself with making a general study of the problem and recommending further investigation. The Legislature provided for the printing and distribution of this report. The Commission of Public Welfare of Connecticut was appointed in 1917 to investigate and report on hours of labor and minimum wage, health insurance, mothers' pensions, and occupational disease. Its recent report declared that Connecticut should not be the first to experiment with health insurance. It recommended that occupational diseases should be included under the compensation law, and favored the establishment of mothers' pensions. In the majority report of the Illinois Commission also, it was stated that the findings "do not justify the recommendation of compulsory health insurance," although a minority report was heartily in favor of it.

Maternity insurance has never been adopted in the United States. This insurance is designed to aid working women in meeting the unusual costs and loss of wages attendant on childbirth, and has been very generally developed in all countries having health insurance, as an integral part of their social insurance systems.

UNEMPLOYMENT INSURANCE. Until recently, destitution due to unemployment was never considered as a matter that concerned society as a whole, and the costs of which should be dis-

tributed through a system of insurance. But unemployment insurance was first originated by labor unions, and in 1901 the city of Ghent, Belgium, in order to relieve the pressure of slack times, offered subsidies to unions which paid unemployment benefits. This plan rapidly spread to other countries. Great Britain in 1911 adopted a nation-wide system of compulsory unemployment insurance which at that time embraced some 2,500,000 workers and has since been greatly increased in its scope. During the period of demobilization it is reported that England was paying out \$5,000,000 every week in unemployment benefits. The system is supported by contributions exacted from both employers and employees and the government also contributes to the fund from which the worker, if unemployed, may receive a small weekly cash benefit for 15 weeks in any year. Definite incentive to the employer to reduce his labor turnover, and to the worker to hold his job is held out by offering both of them refunds for steady work.

Belgium instituted a system of unemployment benefits during the year, effective May 4th. The benefits are to be paid in cash, the sum to be determined in each case by the degree of need; i.e. the sum paid to any family is to be determined by the difference between its needs and its resources, within the limits of a subsistence scale worked out by the government. Any supplementary assistance must come from the local authorities, and must be in the form of food or clothing. 75 per cent of the cost of the project is borne by the government and 25 per cent by local institutions,—viz., the commune, province, charitable institutions, and private donations.

Italy, also, adopted a scheme of unemployment insurance in 1919. According to *Tribuna*, June 10th, a decree has been issued by the Italian government providing that benefits be paid, varying in amount according to the age and sex of the unemployed, and to the population of the district of residence. Such grants are not to be started until the eighth day after the last wages were received, and only persons registered at their local employment bureaus are entitled to benefits.

WIDOWS' AND ORPHANS' INSURANCE OR MOTHERS' PENSIONS. The expense of voluntary insurance in private companies has led in certain countries to government intervention in providing for workingmen's families whose breadwinner has died. Survivors' insurance, of this type, exists in Germany, France, Holland, and Austria. Pensions are provided for both widows and orphans. In the United States at the present time, 39 States make some public provision for mothers left with young children to support; similar provision is made in Canada, Denmark, and New Zealand. The statutes providing for these mothers' pensions vary greatly; some provide only for widows, and others for women who are divorced and deserted, or whose husbands are in prisons or asylums, or otherwise incapacitated; age-limits vary also—children up to 13 years of age being provided for by some, and up to 17 years of age by others; the amount of the pensions vary from \$2 per week for each child, to \$25 per month for one child, and \$15 for each additional child. See **OCCUPATIONAL DISEASES**.

SOCIALISM. THE INTERNATIONAL. During the war while the International Socialist Bureau

existed, the International as an organization was virtually suspended. Efforts were made to revive it in 1918 by the celebrated meeting at Stockholm, which was the subject of endless discussion in the press. It had been proposed by the members of the Dutch and Scandinavian Socialist parties but, in spite of the vigorous efforts to overcome the difficulties occasioned by the national spirit, the project failed. The Socialists of the Allies were not ready to meet in any congress at which German representatives would have a voice. In September, 1918, there was an Inter-Allied Labor and Socialist Conference in London and arrangements were made for holding an international conference while the Peace Conference was in session. This conference which was called at Berne in February, 1919, is described in the following paragraph. The Bolsheviks of Russia refused to recognize this International and they set up one of their own at Moscow, which was vaguely called throughout the year by certain parties, the "Third" International, although according to a large portion of the party it had no right to such a name (see *Moscow Conference*, below). The moderate parties including the British Labor party favored the second International, that is to say, the organization resulting from the Berne conference but would have nothing to do with the Moscow organization. The second International organized on the basis of the Berne arrangement met at Amsterdam in April. An executive committee was formed consisting of M. Branting, Swedish Socialist leader, Mr. Arthur Henderson, Secretary of the British Labor party, and M. Camille Huysmans, Secretary of the International Bureau.

BERNE CONFERENCE. On Feb. 2-9, 1919, the International Socialist Conference was held at Berne having been summoned by the International Socialist Bureau. The President was H. Branting of Sweden and among the members participating in discussions were the following: Kautsky, Haase, Eisner, Müller, Janson, and Wells of Germany; Adler, Austria; Macdonald, Bunting, Ethel Snowden, J. H. Thomas, MacGurk, Shirkie, and Henderson, Great Britain; Longuet, Renaudel, Milhaud, Cachin, Thomas, Mistral, Lorient, Verfeuil, France; Huysmans, Belgium; Troelstra, Holland; O'Brien, Ireland; Kinf, Hungary; Justo and de Tomasso, Argentina; Locker, Palestine. Delegates were also present from Alsace-Lorraine, Czecho-Slovakia, Denmark, Sweden, Finland, Lettland (Latvia), Georgia, Esthonia, Russia, Poland, Greece, Bulgaria, Armenia, Spain, and Canada. Twenty-six countries were represented in it, by 94 delegates, including Majority and Minority Socialists from Germany, and Constitutional Socialists from Russia. Countries that refused to send delegates were Norway, Switzerland, Belgium, Italy, Rumania, and Serbia. In other countries the Communist groups refused to send delegates. The representatives from Australia and Ukraine arrived too late for the meeting and the delegates from the American Socialist party were unable to arrive in time. The principal points discussed or decided at the Conference were as follows: First, in regard to the responsibility for the war, it was decided to leave this question to the next International Conference. Second, The League of Nations; resolutions were passed demanding that the League should endeavor to prevent future wars; that it should abolish all

standing armies and bring about disarmament; create an International Court; enforce decision by economic weapons; protect small nations; provide for free trade; enforce the International Labor Charter. Third, Self-determination of all nationalities was advocated and annexation and economic and political spheres of influence were condemned. Fourth, there was a lively discussion of the issues raised by the Russian revolution. A resolution was adopted providing for the dispatch of a mission to Russia and leaving the subject of Bolshevism over to the next conference. The Conference decided in respect to this matter that socialization consisted in the methodical development of economic life under democratic control and that the arbitrary taking over of a few undertakings by small groups of men was not Socialism. It condemned a dictatorship of any group that had no chance of gaining the support of the majority of the people. Other resolutions dealt with the return of prisoners of war and with provisions for continuing the work of the Conference.

LUCERNE CONFERENCE. After the Berne Conference the committee for the reconstitution of the International held a session at Lucerne, August 2d-9th and received the reports of the committees which had been chosen at the Berne Conference. At these meetings the points of view of the Berne delegates were again expressed. Resolutions were passed protesting against the reactionary movement in Hungary, the pogroms in Poland, the massacres in Armenia, the Allied intervention in Russia, the continuance of the blockade against the Soviet government, and the Allied support of the counter-revolutionary forces in Russia. The Conference decided that a meeting of the International Labor and Socialist Conference should be held at Geneva, Feb. 2, 1920, and it drew up a programme that should come before it for discussion. It was decided also that there should be a meeting of the parliamentary representatives of the Labor and Socialist parties in order to create a permanent committee of these parties and arrange a plan of joint action for the parliamentary groups of the different countries.

MOSCOW CONFERENCE. An International Communist Conference was held at Moscow, March 2d-6th, consisting of 32 delegates and representing the communistic radical Socialist groups in 12 different countries. It was decided that a Third International should immediately be formed. The work of the Zimmerwald Conference was completed. The subjects discussed included the programme of the Communist International; the dictatorship of the proletariat; the attitude toward other Socialist parties and toward the Berne Conference; the location of the Bureau of the new International Conference; the present European situation and the policy of the Allies. The manifesto of this Communist Conference declared that its members, representing the Communist revolutionary proletariat in the different countries were carrying out the programme that had been drawn up by Karl Marx, 72 years before. It attacked the German Socialists who had supported their government during the war. It accused Great Britain, the United States, France, and Italy of responsibility for the war and of selfish motives; characterized the war as an imperialistic catastrophe; declared that finance had militarized the state and that the ruling classes had steadily betrayed the workingmen. It maintained that henceforth there was

no possibility of a return to free competition, that to bring to an end the prevailing crisis the only available means was the establishment of a proletariat dictatorship. It considered the national state as too restricted a form for the continued development of productive forces. It said that the power of capitalism had never been so destructively shown as during the war especially in regard to the colonies, for the populations of the colonies had fought on a scale never before known and they were finding that they were to remain in the future the slaves of England and France. Other features of the manifesto exhibited a similar spirit. In concluding it declared that in all countries where the masses had been awakened and had begun to think, workingmen, soldiers, peasant councils were constantly being formed, and that international union was the first step in organizing the Socialist movement, and it ended with the following appeal: "Join us, proletarians, in every country—flock to the banner of the workmen's councils, and fight the revolutionary fight for the power and dictatorship of the proletariat."

PAN-AMERICAN CONGRESS. An important congress was held April 26th to May 1st consisting of Socialist Labor delegates at Buenos Aires, Argentina. It represented Socialist and Labor organizations of Argentina, Chile, Bolivia, Peru, Uruguay, and Paraguay. Among the resolutions that it adopted were a protest against the violation of the right of peoples to self-determination; an expression of good-will toward strikers in Buenos Aires and on the farms; and the commendation of women in their struggle for economic, social, and political freedom. It also demanded a 44-hour week; the prohibition of child labor; the minimum wage; the nationalization of the land; compulsory education to the age of 16, etc.

BELGIUM. In the elections of November 16th, the Belgian Socialists elected 67 deputies, as against 40 in the former Chamber, and thus became one of the strongest groups in Parliament. (See *BELGIUM, History*.) This success was attributed by their leaders to several causes. In the first place universal suffrage was for the first time equally applied on the principle of one man, one vote, the old system of plural voting being discarded. Then in Belgium the working-classes and peasants formed a solid *bloc* without regard to racial or other differences. Walloon working men and Flemish peasants were united as Socialists, and there was no division in the labor party. Again, the programme was moderate and practical, including development of social insurance, workmen's housing plans, state ownership of unexploited mines, development of the sanitary service, etc. Finally, the Belgian Socialists were free from any suspicion of pro-Germanism or anti-nationalism. They had refused to come to any understanding with the German Socialists. The well-known Socialist leader Emile Vandervelde, referring to this point in an interview, remarked: "We chiefs of the party were inclined under certain conditions and in certain respects to favor a renewal of the relations with the International, and in consequence with German Socialism; but the mass of the workingmen, who trusted us, opposed it vehemently and obstinately; and we had to bow to their will. What better proof could there be of the patriotic and national spirit of the Belgian working class?" He went on to say that the Belgian

Socialist journals at the close of the year were reprinting the revelations by the German Socialist Kautzky of the Kaiser's comments on dispatches during the critical days of July, 1914, and accompanying them with bitter censure of the German Socialists for complicity with German aggression. He cited the following passage from the Brussels *Peuple*, an organ of the Socialists: "Our readers must not be the victims of the German majority Socialists' trickery. To excuse their own treason to the principles of the International the German majority Socialists wish to propagate throughout the world this silly and grossly demagogic legend which consists in saying: 'All that is the fault of capitalism.'"

FRANCE. In August, 1919, the number of paying members of the party was placed at 102,000 which was nearly three times the figure that had been given for December, 1918. In April, 1919, the Socialist party voted to remain in the Second International, provided that those who were Socialists only in name be expelled from it. The motion of M. Lorient to take part in the "Third" International at Moscow was defeated by 894 votes against 270. The demands of the Congress in its electoral programme were that a constituent assembly be called; universal suffrage granted, and the following reforms adopted: The initiative and proportional representation, a single legislative chamber, decentralization of government, representation of workers in industrial management, nationalization of essential industries. It also protested against the ratification of the Versailles peace and it voted down the League of Nations by 1420 to 112. The newspaper organ of the party set forth the view that the peace should not impose punishment upon Germany and that the German Socialists were trying to turn the revolution into an actual Socialistic movement. This and other features were embodied in a resolution passed by the Congress which greeted the German republic and declared its support of the true German Socialism and its respect for the memory of Liebknecht, Eisner, Rosa Luxembourg and other martyrs of the cause; extended greetings to the Russian Soviet government and set forth its views of the policy of that government as follows: Socialist thinkers from the time of Karl Marx had always recognized the necessity of the dictatorship of the proletariat, which naturally had to employ force not only to establish itself but to combat counter-revolutions. It declared for unceasing opposition to the bourgeois control, for refusal to vote the budget and for the exclusion of all alliances or electoral coalition on the occasion of a first or single ballot. The Congress led to the separation of two Communist groups formed in order to enter into relations with the "Third" International.

As the general elections approached a congress of the French Socialists was held at the beginning of October. The object of the meeting was to secure harmony or at least the appearance of it before the country. This was difficult because every shade of opinion was represented and the most diverse elements were held together by artificial ties. The party for example comprised such extreme opposites as those who declared themselves anti-Bolshevist like M. Albert Thomas, and those who showed a Bolshevik tendency like the partisans of M. Longuet. The efforts to secure harmony were opposed by

several members of the extreme factions such as M. Rayspoort and Madam Saumonneau. The latter demanded the exclusion from the party of those Socialists who had voted for the budget and also proposed that every deputy who had either voted for the peace or abstained from voting should be dismissed from the party, aiming especially at M. Albert Thomas who had declared that he might abstain from voting. The Congress did not follow either of these courses. As to those who had voted the budgets it confined itself to blaming them, and in regard to voting for the Treaty of Peace it simply said that the Treaty of Peace must not be ratified by the elected Socialists. The chief paragraphs of the final resolution, setting forth the attitude of the party were as follows: "The National Congress, considering the question raised by several federations in regard to the attitude of the 11 Socialist deputies who on two occasions voted the credits demanded by the bourgeois government, repeats that the refusal of credits continues as the basic principle of Socialist unity. The Socialists elected to parliament form a single group in the face of all the bourgeois political factions. The Socialist group in parliament must refuse the government all the means that assure the bourgeois mastery and control of power, and must therefore refuse the military credits, the credits for colonial conquest, and the budget as a whole. The Congress, considering the problems occasioned in certain federations by the difficulties relating to the nomination as candidates for the legislative elections of comrades already elected, declares that for these nominations it is the duty of the federations to safeguard Socialist principles and at the same time display a broad spirit of toleration and of Socialist unity. In view of the approaching legislative elections the Congress directs the permanent administrative committee to issue an address to the workers of France which shall make them realize the necessity of harmony among the diverse elements. This manifesto must base itself on the programme of the party and the national and international situation at the time of its issue." The resolution was adopted by 1427 votes against 490 for the resolution proposed by Madam Saumonneau, and two abstentions. In the parliamentary elections of November, 1919, the total Socialistic vote was placed at 1,750,000, a gain of about 40 per cent over 1914. Their representation in parliament, however, was reduced from 105 to 55. This was attributed to the complicated system of representation. See FRANCE, *History*.

French Trades Union Congress. The meeting of the Trade Union Congress was held at Lyons in September and it came to an end on September 21st, having voted a resolution by 1633 against 324 which set forth the general programme. To indicate the attitude of organized labor and the distinction between it and the Socialist programmes the following summary is given: The objects of organized labor were as follows: To put an end to the employing class and the wage system; to suppress the class warfare and replace it with a collective organization in which all would share equally in bearing the burdens and in making the laws; the direction and control of this organization to be in the hands of labor, for labor is the prime factor to which all others are merely subordinate or parasitic; the complete emancipation of labor which can only be secured by the expropriation of capi-

tal; the general strike to be the means of action: direct pressure always to be brought to bear upon the employer. Though these were the ultimate ends the programme declared that at present all the force of the movement should be directed to the conclusion of contracts, which contracts were of value as marking stages toward the desired end, for they successfully limited the authority of the employer and tended to introduce in shop or factory the emancipating force of the trade union. The ultimate aims were to be achieved by the nationalization of the great public services, namely, land and water transport, mines, and credit institutions. The resolution declared that "the direct exploitation by the collectivity of the general wealth, and the placing under its control of the functions and organs that direct the industrial processes for the transformation of this wealth and its distribution, are an essential condition of the reorganization which we wish to pursue." This did not involve, like state Socialism, the extension of the power, and functions of the state, but only the turning over of industry throughout the country to the producers and consumers combined. The practical means of carrying out such a plan were not indicated. The resolution declared that the labor unions were neutral in respect to purpose and political doctrines, and did not find their exact and exclusive expression in acts of violence. At the same time it declared that trade unionism was in its origin, its present character, and its permanent ideal, a revolutionary force.

The attitude of the trade unions toward socialism in France was indicated by the remarks of the secretary of the Federation of Labor, M. Marcel Laurent. At a meeting in 1919 he said that now that the elections were approaching, the trades unionists resolved to prevent their ideals and their policy from being made subservient to any political party whatever. Politics meant disaster and were the cause of all their evils. Politics must disappear and not trade unionism. This evidently bore on the recent conference at Lucerne, where the French majority Socialists had approved the German declaration to the effect that the hour of revolution had sounded, and that it was necessary to build up an organization from which trade unionism and co-operation would be excluded. This was taken by some to mean a Bolshevik policy. But the Socialists in the French press explained that the majority of the French representatives at Lucerne had in no wise approved this German programme, and replied that they did not desire to exclude the trade unions and the co-operatives. Nevertheless the trade unions distrusted the politicians as sure to manipulate the working-class organizations according to their own desires, and showed an intention to continue to act outside of politics. The conservative element in France was as distrustful of trade unionism as of Socialism. It was pointed out that French trade unionism was a different thing from the American institution, because aside from providing for its professional interests and from the work of organization, it undertook especially to interfere with the administration of public affairs, and with the control of the general policy of the nation. It made use, for example, of the political strike which was a most dangerous instrument of revolution. In a report of the British Federation of Trades Unions, for example, it was said that political strikes were not

directed against capitalism, but against the community, and that the government must protect the public against such strikes or abandon its functions. This was not the attitude of the French unionists. At their meetings they often concerned themselves with revolutionary programmes and considerations of solidarity of the working class, etc., which had nothing to do with the efforts of unionism as understood in Great Britain and the United States.

In view of the ultimate revolutionary objects of the trades unions the attitude of French teachers and college professors is of interest. The French school teachers have for many years endeavored to form a union, and finally they decided to join the labor federation, but in 1919 their right to organize in that manner had not been admitted by the government. The college professors of France took a similar course not long afterwards, and on October 19th, they decided to hold a referendum on the question whether their association which had already been formed should be turned into a regular trades union, and affiliated with the labor federation. Another point that they were to decide was the question whether the union should embrace all technical men, journalists, school teachers, professors, authors, doctors and lawyers, and constitute the so called National Federation of Intellectuals. The proposed organization was as follows: First, a professional body, confined to college professors; second, a union of teachers and high school professors; third, a union of all grades engaged in public instruction; fourth, union of functionaries of all classes; fifth, union of all men of liberal professions. Finally the question was to be decided whether a union of these bodies should be formed with the general federation of labor. See FRANCE, *History*.

GERMANY. The extreme element in Germany as has already been said in the article, GERMANY, broke completely with the Majority Socialists. In January there was sharp fighting between the revolutionists and the government. The result of the elections to the National Assembly was unfavorable to the revolutionists who considered that it was practically a triumph of the bourgeois classes. Power passed completely into the hands of the Majority Socialists. The influence of Independent Socialism, however, was reported to have increased during the year but was impeded by its lack of harmony. There were three tendencies: First, the group headed by Kautsky, Bernstein, and others, who opposed the principle of the dictatorship of the proletariat and attacked Bolshevism in general and the Soviet government of Russia in particular; Second, the Centre group headed by the late Hugo Haase which favored parliamentary activity while not opposed to the principle of dictatorship of the proletariat; Third, the extreme elements of the party which favored revolutionary action and desired a close union with the Russian Soviet government. The Independent Socialists took part in the Berne and Lucerne Congresses. They joined in the International demonstration of July 21st on behalf of Soviet Russia. Their membership was reported at 700,000 as compared with 300,000 a few years before.

GREAT BRITAIN. In regard to the relations of the British Labor party with the Socialists, see articles GREAT BRITAIN; STRIKES AND LOCK-OUTS; TRADE UNIONS, ETC. Efforts to bring the Socialist parties of Great Britain together were

unsuccessful. There was a conference of the three groups: The Independent Labor party, the British Socialist party, and the Socialist Labor party, but it did not result in a union. The British Socialist party represents the radical element. At the Sheffield Conference in 1919 it expressed approval of the course taken by the workers of Hungary. It did not take action in regard to the Berne Conference because of its objection to the representation in that conference of the parties opposed to revolution. The National Socialist party held a convention at Northampton in August in which it indorsed the proposed League of Nations. It also favored the alliance between England, France, and the United States.

HUNGARY. The establishment and overthrow of the Soviet government in Hungary has been discussed in the article AUSTRIA-HUNGARY (see paragraph on *History*). The fall of the Socialist government led to the disruption of the Socialist party. The Socialists had joined with the Communists for the creation of a new Socialist state and the two elements worked together with a fair degree of harmony so long as the Soviet government lasted. In September, however, the Communist régime had disappeared and the Socialist party held a conference at which it was decided to dissolve the union with the Communist element. It repudiated the "Third" International (Moscow) and decided for affiliation with the International Socialist Bureau. In the latter part of the year Hungary was completely in the control of the reactionaries; the Communist party was proscribed and in so far as it existed held its meetings in secret.

ITALY. The executive committee of Italian Socialist party decided in March, 1919, by a vote of 10 to three to indorse the programme and manifesto of the Moscow Conference. This action was supported by a great majority at the National Convention of the party which also reasserted its attitude against the war and censured Socialist deputies for not taking a more aggressive stand in parliament. In December, 1918, the executive committee had already submitted a programme of a radical nature and this also met with the approval of the party. Its features included socialization of production, etc., direct participation in certain industrial activities of workers; distribution of commodities exclusively through coöperation; abolition of military conscription; and the union of the Socialist proletarian republics. Furthermore it demanded the withdrawal of troops from Russia and it was against the rendering of homage to the representative of the United States. As a result, when President Wilson addressed the Chamber of Deputies about 40 seats were empty. The Italian party joined in the demonstration of July 1st and they carried out a general strike in protest against the Russian blockade. This brought industry to a standstill in several of the provinces and for a time traffic ceased and Soviet governments were set up in over 200 towns. The Peace Treaty was denounced as well as the proposed League of Nations. In the elections of November, 1919, the Socialists gained a great victory. Votes in their favor were placed at about 3,000,000 as compared with 883,409 in 1913. See ITALY, *History*.

SWEDEN. The main Socialist party in Sweden is the Social Democratic Labor party which is moderate in tendency. It favored neutrality

during the war. The so-called Socialist party has devoted its attention to revolutionizing the labor movement. At its convention in June, 1919 it favored by a vote of 136 to 69 the movement of mass action in order to get possession of the political power and to establish Socialism, and declared for dictatorship of the proletariat. The more moderate or Social Democratic Labor party was reported to have 600 members in the city councils and over 6000 on town, school, and taxation boards. Its parliamentary strength was 86 representatives as compared with 12 of the Socialist party.

SWITZERLAND. At the regular conference of the Swiss Social Democratic party held early in 1919, resolutions were passed in favor of the dictatorship of the proletariat and pledging support to Soviet Russia; indorsing the general strike and opposing the participation of members in the Federal government; demanding the withdrawal from the Second International and approving the participation in the "Third" International (Moscow). The formation of a Communist party resulted in May, 1919, from the refusal of the Social Democrats to favor political action. Elections during the year showed an increased vote for the Social Democratic party. In elections for parliament for October their representatives in the National Council were increased to 41 as compared with 18 in 1914. The party joined in 1919 with the labor unions in presenting a series of demands in order to offset the high cost of living. These included the minimum wage, price-fixing, government control of necessities, etc.

OTHER FOREIGN COUNTRIES. Among other countries of Europe the Socialist parties of the following may be briefly mentioned: In Bulgaria the Socialist element was divided into two wings of which one was moderate and the other communistic. There was a bitter hostility between them which increased on account of the moderates' support of the government and of the majority Socialists in Germany. The moderate element was represented at the Berne International Conference. The Communist element at a convention held in May, 1919, decided to affiliate with the Moscow International Conference and definitely changed its name to the Communist party. In Czecho-Slovakia the war disorganized the condition of socialism. The Social Democratic party became nationalist in its programme and finally definitely joined the nationalist movement. This resulted in a unified Socialist party, moderate in its sympathies which associated itself with the International Socialist Bureau and took part in the Berne and Lucerne Conferences. It demanded withdrawal of the Czecho-Slovakian troops from Siberia. This was opposed by the Nationalist Conference. Other points of disagreement arose and weakened the Socialist movement but the Social Democratic Labor party was the strongest of the groups. It claimed a membership of 122,000. Almost every member of the government in 1919 was a Socialist of one shade or another. The prime minister, a Social Democrat, announced a programme tending toward the establishment of Socialistic institutions, but not of a revolutionary nature. The alliance of the Socialists with the nationalist groups led to the formation of a Communist party in the spring. (See CZECHO-SLOVAKIA.) In Denmark the Social Democratic party became a part of the government during the war. The

Socialist movement in Denmark is described as the most conservative in the Scandinavian countries. The Social Democratic party is opposed to the radical tendencies of the Socialist movement, and is interested chiefly in securing reforms and the promotion of social and labor legislation. In Finland Socialistic activities were greatly reduced on account of the reaction known as the White Terror. The extreme element was to a large degree suppressed. The Social Democrats were tolerated by the government, being moderate in policy. In March they had secured 80 seats out of the 200 in parliament. Many of the radicals were held in prison though some were released in the course of the year. In the Netherlands the Social Democratic Labor party declared at its national convention that it was opposed to capitalistic rule. The Social Democratic party, more radical in tendency, allied itself with the international anti-war groups during the war. The former party claimed about 42,633 members. It was reported in 1919, however, that the more radical Social Democratic party was increasing in power. In Norway the more radical elements assumed control of the Social Democratic party in 1919. It passed a resolution approving mass action and decided to join the "Third" International (Moscow). In the election of 1919 its vote was increased to 297,000 as compared with 198,000 in 1915. It claimed a membership of about 94,000. In Poland 80 Socialists of different shades were elected to the first constituent assembly in February, 1919. Its representatives, however, came from a more moderate element for the radical element on account of the hostility of the government could not participate in the elections. A Communist party was organized in May, 1919, and many of the radical members of the Social Democrats joined it. In Rumania the Socialists elected 12 deputies in the elections of November, 1919, increasing the membership of the party from 4000 to 24,000. The Social Democratic party was represented at the Berne Conference by two delegates who, however, were ordered not to take part in the discussions. The party voted down almost unanimously a proposal to affiliate with the International Socialist Bureau. The Rumanian party was pacifist during the war and was one of the first to approve the Zimmerwald and Kienthal movements. In Jugo-Slavia the Socialists were prosecuted by the government and on May 1st some 350 members of the Socialist Democratic party were arrested. In Spain the Socialists held a conference in the spring at which they declared against intervention in Russian affairs and favored a general strike against the invasion of Russia. They also called upon the party's representatives in parliament to introduce a bill forbidding the provisioning of counter-revolutionary forces in Russia. The proposal to join the "Third" International conference, however, was voted down by a large majority. The party maintained its relations with the Second International and was represented at the Berne and Lucerne Conferences.

UNITED STATES. Throughout the war the American Socialist party constantly worked to keep the United States out of war, remaining true to the principle of the international solidarity of the working classes. The Italian Socialists who had also maintained this attitude said in their address to President Wilson during his

visit to Italy in June, 1919: "To the honor of Socialism of the United States we recollect that they also adhere to our international principles and do not support your war." The attitude of the party in war-time was expressed at the celebrated National Emergency Convention at St. Louis, April 7-14, 1917, in what was known as the St. Louis Anti-war Proclamation Programme, which was afterwards ratified by a large majority of the party members. There was however soon after the entry of the United States in the war, a split in the party, which carried off some of the pro-war members, and they combined with various radical groups to start a National organization but the movement did not attain any great numerical importance. Also in the year 1919 the Socialist party chose three delegates to represent it at the International Socialist Conference at Berne but they were unable to obtain passports until too late to attend the meeting. In 1919 factional disputes developed in the party and resulted in the withdrawal of the more revolutionary and radical element including the foreign-speaking members, especially those in the seven Slavic federations. These dissidents formed the groups subsequently known as the Communist and the Communist Labor parties. They took this action after the Socialist party convention which was opened August 30th in Chicago. Among the important acts of this convention may be mentioned the fact that it definitely committed itself to the support of Eugene V. Debs as presidential nominee of the party, the motion to be ratified at the 1920 convention. Another important feature of the convention was the decision in regard to international relations. It declared that the Second International ceased to operate upon the outbreak of war; that the Berne Conference illustrated this collapse especially in its failure to take a helpful attitude toward Russia; that any International to be effective must contain only those elements which stand unreservedly upon the basis of the class struggle. It definitely pronounced the Second International dead and it declared itself in support of the "Third" International (Moscow), because it was really doing something against imperialism; because it was threatened by the combined capitalist forces merely because it was proletarian; and because its downfall would mean the downfall of the Socialist republics in Europe and destroy the hope of Socialists for the future. The convention of August 30th adopted a series of resolutions which are summarized as follows by the *American Labor Year Book*: *Ireland*—Protesting against the military occupation of Ireland and demanding self-determination for the Irish Republic.

India—Protesting against the deportation of Indian revolutionists from the United States and demanding self-determination for India.

Jewish Pogroms—Condemning the pogroms against the Jews, and pointing out the absence of such pogroms in Soviet Russia and Hungary.

Pan-American Relations—Warning against the extent of American Imperialism, and protesting against Mexican intervention.

Mexico—Electing a fraternal delegate to the convention of the Mexican Socialist party.

Espionage Law—Demanding the repeal of the Espionage law and the reestablishing of civil liberties.

Race Problems—Protesting against mob violence against negroes.

Military Training—Protesting against the agitation for military training because "one of the chief purposes of an army is to maintain the power of the capitalist state and supply it with a mighty weapon against labor in revolt."

Deportation and Immigration—Protesting against the deportation of American residents and favoring free immigration.

Mooney—Protesting against his imprisonment and calling upon members to participate in the one-day strike, Oct. 8, 1919.

Berger—Demanding that Victor L. Berger be seated as a member of Congress from Wisconsin.

Plumb Plan—Explaining Socialist idea of public ownership and democratic management of public utilities, and pointing out that the movement for nationalization and control of railroads as proposed by the Plumb Plan is not entirely in accord with the Socialist programme.

Coöperatives—Favoring the establishment of coöperatives and recommending that literature on the subject be distributed.

Industrial Representation—Favoring an amendment to the United States Constitution to provide for the election of representatives in the various legislative bodies from occupational groups instead of geographical units.

Economic Organization—Favoring industrial unionism and establishing a labor department for the preparation of literature and more active work among the labor unions.

Agenda—Instructing the National Executive Committee to prepare an agenda for the next party national convention.

SOCIAL SERVICE. See CHARITIES.

SOCIETY FOR THE PUBLICATION OF AMERICAN MUSIC. See MUSIC, *General News*.

SOCIETY ISLANDS. See FRENCH ESTABLISHMENTS IN OCEANIA.

SOCIOLOGY. For detailed material under this subject heading, references will be found in the YEAR BOOK under SOCIAL ECONOMICS, POLITICAL ECONOMY, BIRTH CONTROL, CHARITIES, LABOR, PENOLOGY, SOCIAL HYGIENE, and INDUSTRIAL RECONSTRUCTION.

The American Sociological Society held its annual meeting at Chicago, Ill., on December 29th, 30th, and 31st, in conjunction with the annual meetings of several other learned societies. The President of the Association is Prof. Frank W. Blackmar, and Prof. Scott E. W. Bedford is Secretary and Treasurer. The main topic for discussion at the meeting was a consideration of the various phases of the problem of democracy. The meeting was divided into a number of sessions at which papers on assigned subjects were read, the reading being followed by a discussion. The papers read were "Democracy in Politics" by U. G. Weatherly; "Democracy and Partisan Politics" by J. M. Gillette; "Democracy and Labor" J. Roscnwald; "Some Psychological Aspects of Industrial Reconstruction" by A. B. Wolfe; "Democracy and Community Organization" by D. Sanderson; "Democracy and Class Relations" by F. S. Chapin; "Modern Philanthropic Movements in their Relation to Democracy" by J. L. Gillin; "Religion and Democracy" by C. A. Ellwood; "Democracy and Reconstruction in Europe" by W. A. White; "Labor and International Relations" by J. B. Andrews; "The Problems of Educating a De-

mocracy" by W. R. Smith; "Vocational Factors in Democratic Education" by D. Snedden; "Racial Factors in Democracy" by J. Dowd; "Americanization" by Jane Addams; "Democracy and Bolshevism" by S. Perlman; and "Democracy and Socialism" by J. E. Hagerty.

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Population. F. L. Hoffman, *The Mortality from Degenerative Diseases*; F. B. Hunter, *Infant Mortality*; H. J. Jennings, *The Coming Economic Crisis*; C. K. Millard, *Population and Birth Control*; P. Popenoe and R. H. Johnson, *Applied Eugenics*; E. B. Reuter, *The Mulatto in the U. S.*; T. Schroeder, *List of References on Birth Control*; C. G. Woodson, *A Century of Negro Emigration*; C. Briand, *Le depeuplement de la France, son état actuel, ses remèdes*; J. Machat, *La depopulation de la France*; *Population and its Distribution*, compiled from the U. S. Bureau of Census figures. See CHARITIES; PENOLOGY; SOCIAL HYGIENE.

SODIUM. See CHEMISTRY, INDUSTRIAL.

SOILS. During the world war and following it the soils of the United States maintained a greatly increased production. This was made possible by extending the cropped area and increasing the acre yields. The area of arable land in the United States is estimated at 850,000,000 acres, or 45 per cent of the total area of the country. The area in crops in 1909 was 311,000,000 acres; in 1918, 368,000,000 acres. It is estimated that 50 per cent of this increased acreage was due to the effort to meet war-time needs. The report of the Secretary of Agriculture for 1919 shows that during the past 25 years there has been an upward tendency in acre yields, amounting on the average to 0.5 per cent per

year, as a result of improved processes and better practices in all parts of the United States, and the Secretary adds—"for many years to come the average yield per acre . . . may be expected to increase," for, notwithstanding the upward tendency in acre yields "only about 15 per cent of the land in cultivation is yielding reasonably full returns." He points out also that "the Nation can further expand its output of commodities by cultivating the tillable land which at present is unused, estimated to be over 60 per cent of the total." It is estimated, moreover, that there is 300,000,000 acres of land in the United States which can be reclaimed by clearing, drainage, and irrigation, and Congress was strongly urged during the year to make enlarged provision for the reclamation of these lands and for settling returned soldiers upon them. Land utilization was in a measure revolutionized in Great Britain as a result of the exigencies of war. About 3,000,000 acres of grass land in the United Kingdom was brought under cultivation during the war with the result that the production of breadstuffs was increased fourfold. The indications are that the proportion of grass land to cultivated soil will not again be as great as it has been in past years. There still remain, however, 30,000,000 acres in permanent or temporary grass and 16,000,000 acres of mountain grazing land.

The systematic survey of the soils of the United States was continued by the Bureau of Soils during the past year with reduced force. Nevertheless, during the year ended June 30, 1919, a total area of 33,988 square miles, or 21,752,320 acres, was surveyed and mapped in detail (as compared with 38,136 square miles the previous year), making the total area so covered to date 517,949 square miles, or 331,487,360 acres. A reconnaissance survey was made of an area of about 6085 square miles in the State of Texas, making the total area covered to date by reconnaissance surveys 98,382 square miles, or 62,964,480 acres. The results of the soil survey work were found to be especially useful during the war not only in promoting production but for purely military purposes. The soil maps and base map information were used by the army engineers, and military purposes were still further served by selecting for survey during the winter of 1918-19 those localities in the Southern States where there was the greatest need for the fundamental information which such surveys supply. The demonstrated value of the data obtained through comprehensive and systematic surveys gives special point to the recommendation which the Director of the U. S. Geological Survey makes, in his last annual report, for adequate provision for the speedy completion of the topographic survey of the United States, which has been in progress for 40 years and has covered only about 40 per cent of the total area of the country. It is stated that with the Geological Survey's appropriations for topographic surveys, with cooperative State funds, and with funds contributed by the War Department, approximately \$700,000 became available for this work July 1, 1919. It is estimated that a total of \$40,000,000 is required to complete the work by 1932.

The Bureau of Soils continued its studies of soils with reference to forest growth and reforestation; land classification on the Great Plains and elsewhere; extending existing irriga-

tion projects; and production of truck crops in the Eastern United States. A generalized soil map of Africa, based on existing literature, was prepared, and a survey of soil and other economic features of parts of Guatemala and Honduras was made. Important contributions were made during the year to the knowledge of the soil solution, tending to confirm the view that this solution is neither saturated nor constant and that there is a direct relation between the concentration of the solution and fertility of the soil. Good soils appear to replace the water-soluble materials as fast as they are absorbed by plants, and even poor soils may have a considerable reserve of soluble material. In other words, plants apparently can not entirely exhaust soils. There is, however, a decrease in rate of formation of soluble material by continuous cropping with little or no return of fertilizing matter. Some recent experiments indicate that the addition of fresh manure to the soil does not immediately increase the water-soluble matter beyond that added by the manure. Considerable attention continued to be given to studies of the nature of soil acidity and the methods of measuring and correcting it. Hydrogen ion concentration measurements have been much used with variable results. A certain kind of acidity has been shown to be due to hydrolysis of iron and aluminum compounds. Whatever the cause of soil acidity, lime appears to be generally effective as a corrective. The rapid transformations which lime compounds undergo when applied to the soil have been the subject of much investigation. Recent investigation furnishes further evidence that growth of crops frequently depresses nitrification. The whole subject of conditions favoring or hindering bacterial activity in the soil has recently received further attention with results tending to emphasize the fact that among the primary requirements for beneficial bacterial action in soils are suitable supplies of lime, phosphates, and organic matter, and that it should be the object of good farm practice to furnish these. Soil aëration has been shown to have an important bearing on productiveness and plant distribution. Studies of soil air have shown that at a depth of 6 inches the air of the soil is very similar to that of the free atmosphere as regards the average content of carbon dioxide, although this constituent varies more widely in the soil than in the free air. At times, especially during active nitrification or in very warm weather, the soil air may be entirely deprived of oxygen, a condition which offers a serious obstacle to beneficial bacterial action and emphasizes the importance of aëration.

Partial sterilization of soils has been tested and recommended as a practical method of treatment of orchard and field soils in France. Carbon bisulphid and other liquid disinfectants have been used with good results for this purpose. In England the preference rather inclines to the use of heat as a sterilizing agent. A branch of the Rothamsted experiment station was established during the year under private endowment to make special study of sterilization of glass-house soils. Studies of the effect of steam-sterilized soil on plant growth at the Wisconsin experiment station led to the conclusion that while such sterilization may result in a short period of retardation of growth and in certain cases marked interference with normal growth,

beneficial effects usually follow, and hence "little hesitancy need be felt in recommending steam sterilization of soil for practical purposes."

SOLDIERS' SETTLEMENT ON LAND.

See AGRICULTURE; RECLAMATION, and AGRICULTURAL LEGISLATION.

SOMALI COAST. See FRENCH SOMALI COAST.

SOMALILAND, ITALIAN. See ITALIAN SOMALILAND.

SOMALILAND PROTECTORATE. A British protectorate comprising the Somali coast on the Gulf of Aden. Area about 68,000 square miles; population about 300,000, chiefly Mohammedan and wholly nomadic except on the coast where the chief towns are situated. The largest towns are Berbera with a population of about 30,000; Bulhara (7300); Zeyla (7000). Live stock is the main source of wealth. Imports in 1917-18 amounted to £282,715; exports, £206,476; revenue, £42,000; expenditure, £115,853; grant in aid for 1917-18, £83,000. Governor in 1919, G. F. Archer.

SONNINO, BABON SIDNEY. Italian representative at the Paris Peace Conference. He was at that time Minister of Foreign Affairs. He was born in 1847, his father being an Italian Jew and his mother an English woman. In his youth he served in Italian legations at Madrid, Paris, and Vienna. He became a member of Parliament at the age of 30, standing as a Liberal-Conservative, and attracted attention by his knowledge of social, financial, and economic affairs, especially of peasant conditions in Sicily. He favored as an agrarian policy the breaking up of the large estates. He was under-secretary for finance in 1887-90, and 1893-96 in the cabinets of Crispi, and he was afterwards minister of the treasury. In the latter office he acquired credit by his radical reform measures, but his prestige suffered along with that of Crispi, as the result of the Abyssinian disaster to the Italian arms in 1896. He led the opposition or the majority in Parliament for a period of 10 years, during which he was twice prime minister for a brief interval in 1906 and 1910. He assumed the office of foreign minister in November, 1914, and negotiated with Austria and Germany for the recognition of Italian claims. He also negotiated the London treaty with England, France, and Russia at this time, and concluded it after the negotiations with the Central Powers broke down.

SOUTH, UNIVERSITY OF THE. A Protestant Episcopal educational institution, founded in 1857 at Sewanee, Tenn. The enrollment in the summer session of 1919 was 37, and in the fall, 245. There were 23 members in the faculty, three being new in 1919. Productive funds amounted to \$683,615, and the income for the year was \$23,922. The library contains 38,158 volumes. There is now on a \$1,000,000 campaign for additional endowment. President, Rt. Rev. Albion W. Knight, D.D.

SOUTH AFRICA, UNION OF. A British dependency constituted under the South Africa Act of Sept. 29, 1909, as a legislative union, comprising the provinces of Cape of Good Hope, Natal, the Transvaal, and the Orange Free State. The area and population of the respective provinces, according to the census of 1911, were as shown in the table on the following page:

1912, \$175,241,000; 1913, \$187,487,000; 1914, \$152,430,000; 1915, \$142,145,000; 1916, \$188,621,000; 1917, \$169,115,000; and 1918, \$230,659,000.

In 1918 the grand total of exports, exclusive of bullion and specie, was \$150,347,462—an increase of \$21,679,956, or 15.6 per cent. Of this total, \$140,703,830 represented South African produce and \$19,643,632 reexported merchandise. The value of the raw gold output of the Union was \$154,374,213 in 1918. The "round" figures for the total exports of the past three years and of the three years immediately preceding the war are: 1918, \$314,722,000; 1917, \$311,940,000; 1916, \$296,419,000; 1913, \$311,532,000; 1912, \$294,339,000; 1911, \$264,413,000.

The six principal purchasers of South African products in 1918 were, ranking in order as named: United Kingdom, United States, Japan, Portuguese East Africa, Straits Settlements, and France. The United States took a large amount of South African goods which formerly went to Germany and Great Britain. In 1913 exports of produce from the Union of South Africa to the United States were valued at only \$2,609,500, as compared with \$29,142,000 in 1918. These figures do not include reexported goods.

The total value of merchandise shipped from Union ports as ship's stores in 1918 was about \$11,938,000, as compared with \$14,500,000 in 1917 and \$10,403,000 in 1916.

The exports to the United States and the chief articles with their values in 1917 and 1918 were:

Articles	1917		1918	
	Quantity	Value	Quantity	Value
Angora goat hair	1,700,376	\$697,154	5,483,272	\$2,985,816
Asbestos	1,389	306,562	320	72,394
Cloves	221,230	68,068	2,995,761	989,418
Copper:				
Refined			2,302	563,764
Concentrates		234,894	143	31,258
Ore			8,838	866,357
Pigs			711,375	236,564
Diamonds, rough		472,850		239,148
Hemp fibre	445,564	63,995	233,256	45,697
Lucerne seed			54,690	8,670
Mohair	225,325	85,077	231,002	97,661
Ostrich feathers		506,649		466,521
Ore:				
Chrome	34,300	513,566	8,857	170,277
Corundum	110,739	6,328	961,345	42,127
Manganese	10,024	636	214,620	3,645
Sausage casings		35,795		18,009
Skins:				
Goat, dry	1,587,030	827,493	1,287,042	572,063
Sheep, dry	9,463,310	3,496,898	7,401,642	2,950,459
Do			503	119,615
Sugar-cane wax	515	146	84,850	9,496
Wool:				
Scoured	10,220,111	8,578,142	12,002,293	13,374,609
Unwashed	47,031,107	16,602,024	34,161,274	15,277,982
All other articles		43,118		657,545
Total		\$32,539,395		\$39,799,035

ECONOMIC CONDITIONS. The following information in regard to the cost of living, labor conditions, etc., is derived from the United States Bureau of Foreign and Domestic Commerce. An important factory act was passed by the Union Parliament in 1918 and went into effect on March 1, 1919. The law provided for the registration of all factories, for the hours of employment in general, and for those women and children in particular, specified public holidays, and took measures to insure sanitary conditions to prevent sweating and to protect employees

against dangerous occupations. A Cost of Living Commission, which investigated the causes leading up to the high cost of living, reported that one of these was the undue profits that have been made by wholesale merchants in foodstuffs, boots and shoes, soft goods, and hardware, and that these profits will tend to increase still further, both in percentage and amount, as prices continue to rise. The commission added that, to a smaller extent, undue profits have also been made by retail drapers, retail hardware merchants, Indian traders, outfitters, boot-and-shoe dealers, and chemists; however, bakers, butchers, and retail grocers have not made the profits they did in pre-war days, and many of the small firms have had a severe struggle for existence. It is also stated that during the war period the wholesale merchants had increased their control over the retail trade.

The commission dissented from the view that when normal conditions are restored inflated prices will automatically disappear. Consequently, they proposed that prices of necessities, whether imported or locally produced, should be subject to government control and that, by providing an independent check upon the businesses carried on by individual merchants, definite encouragement, and financial assistance should be given to approved coöperative enterprises. Such coöperative societies, it was suggested, would assist the government to ascertain what are reasonable margins between producers' and consumers' prices and also, by buying and selling in the same markets as individual merchants, would assist the consumer to satisfy his wants at reasonable

rates. To finance, control, and regulate these societies, it was added, a coöperative bank would be required.

All questions concerning the conditions of labor in the Union of South Africa are affected and in many instances complicated by the predominance of the native and colored elements of the population. The existence of this class of comparatively cheap labor has influenced the development of the country in various ways. The imported Indian laborers of Natal made possible the remarkable progress of the sugar industry,

supplied the tea planters with suitable workers, and provided much of the necessary labor for railway construction and coal mining. The gold mines of the Witwatersrand have been and are still entirely dependent upon the adequacy of the supplies of native labor, while in the industrial districts of the Cape Province, the colored

follows: Entered, 1036 vessels of 2,989,000 tons; cleared, 1004 vessels of 2,987,000 tons. The coast tonnage entered and cleared respectively was 2,541,000 and 2,517,000 tons.

FINANCE. The estimates for ordinary revenue and expenditures for the year 1918-19 are given in the *Statesman's Year Book* as follows:

Revenue		Expenditure	
Customs	£4,308,000	Governor-general and Parliament	£109,951
Excise	1,150,000	Ministerial Department of Prime Minister and Native Affairs	809,990
Posts, telegraphs, and telephones	1,926,000	Ministerial Department of Defense	1,300,000
Mining revenue	990,000	Mines and industries	221,500
Licenses	114,000	Higher education	180,530
Stamp duties and fees	570,000	Finance—Treasury	40,189
Income tax, super tax, and dividend tax	4,000,000	Public debt	6,690,697
Estate and succession duty	200,000	Pensions	696,251
Native poll tax	830,000	High Commissioner	31,720
Native hut tax		Provincial Administrations	2,889,676
Native pass and compound fees	50,000	Miscellaneous services	65,407
Land revenue	150,000	Inland revenue	58,749
Forest revenue	60,000	Audit	56,203
Rents on government property	110,000	Customs and excise	154,955
Interest	4,078,000	Justice	2,754,541
Departmental receipts	450,000	Interior	874,070
Fines and forfeitures	200,000	Public works	514,750
Miscellaneous	70,000	Agriculture	734,409
		Posts, telegraphs, and telephones	1,860,760
		Lands	150,286
		Irrigation	144,691
Total	£19,256,000	Total	£19,858,824

worker of mixed race has not only supplied very largely the demand for unskilled labor, but has in many cases qualified as a semiskilled artisan. The Union is almost entirely dependent upon native or colored labor for all work in the agricultural and pastoral industries.

As a result of the presence of this element of laborers, the position of the white worker has been limited to a considerable degree to the more highly remunerative lines of the skilled trades, or to the work of supervising and controlling the unskilled laborers. The unskilled white worker has found himself almost inevitably in competition with the native or colored laborer; forced to maintain a higher standard of living, but unable to command a sufficiently high rate of pay. Thus a class of "poor whites" has been produced in the country districts, tending to drift into the cities, and social and economic difficulties of a serious nature are a consequence.

The Union government maintains labor bureaux at all the principal centres for the purpose of assisting in the distribution of labor into the channels where it is most needed and where it will best benefit the laborer.

RAILWAYS AND SHIPPING. Since May, 1910, the railways of the several colonies have been under the control of the Union government, having been merged into one system. The mileage at the close of the year 1918 was 9541. There were also privately owned lines with a mileage of 496. During the year of 1918 the volume of passenger and freight traffic was larger than in any previous year, the total number of passengers being 4,996,842 and the freight, exclusive of coal, 6,720,244 tons. The coal traffic was 7,532,653 tons. The total expenditure for the fiscal year ending March 31, 1918, was \$87,957,121, and the total revenue \$82,788,898, thus showing a deficit of over \$5,000,000. This was attributed chiefly to the heavy expenditure brought about by the influenza epidemic, the high cost of material, and the large amount of idle stock. There was virtually no new construction of line during the year. The oversea shipping in 1918 was as

There was a marked increase in all the public expenditures during the fiscal year ending March 31, 1919. The original estimates of \$96,642,766 were revised to \$103,846,244. Though the revenue increase was also far in excess of the original estimate there was still a deficit of some \$300,000 at the close of the year. The deficit for the next financial year was far more serious according to the estimates which placed it at \$7,470,077, the estimate for revenue being \$100,391,028 and the expenditure \$107,861,106. The means for meeting this deficit were an increased duty on imported spirits and on colonial brandy; also an increased duty on beer and an increased export duty on diamonds. The public debt of the Union on March 31, 1918, was \$780,765,886 and during the fiscal year ending March 31, 1919, borrowings brought this amount up to \$815,074,711. The sinking fund on March 31, 1919, was \$44,408,412. As to the banking conditions the clearing-house returns from the chief cities of the Union in 1918 were considerably in excess of the figures for the previous year. On Dec. 31, 1918, the fixed and floating deposits showed an increase of 69 per cent in the course of four years.

GOVERNMENT. The executive government is administered by a governor-general appointed by the King, acting through an executive council chosen by himself. The legislative power is in the Parliament consisting of the Senate, and the House of Representatives, the Senate having 40 members of whom eight are nominated by the Governor-General in Council and 32 are elected, eight from each province, and the House of the Assembly having 130 members apportioned among the provinces and elected under provisions existing in the several colonies at the time of the Union. The Governor-General at the beginning of 1919 was Viscount Buxton of Newtimber. The Executive Council was made up as follows: Prime Minister and Minister of Native Affairs, Gen. Louis Botha (died, 1919); Minister of the Interior and of Public Works, Sir Thomas Watt; Minister of Defense, Gen. J. C.

strikes being almost constant throughout the year. At the very beginning of the year a serious strike occurred in the city and province of Barcelona, where at the end of February 100,000 people were reported to have been thrown out of work, and where the military intervened in order to maintain the public lighting and transport system of the city. See below under *History*; also the article *STRIKES AND LOCK-OUTS*.

COMMERCE. In 1918 the imports amounted to \$109,773,375; in 1917 to \$239,110,098. The exports in 1918 were \$170,626,895 and in 1917 \$234,602,052. The imports of gold bullion and coin in 1918 were \$6,094,570; in 1917 \$106,339,378. The decrease in value of the exports of merchandise was greatest in the raw materials whose value had been steadily depreciating since 1915. The raw materials which chiefly showed this falling off were stone, and earths employed in the arts and industries including gypsum, coal, petroleum, lubricating oils, phosphates of lime, etc. The importation of manufactured articles of all classes fell off. Foodstuffs also showed a large decline including especially salt pork, lard, bacon, corn, barley, and other cereals, sugar, coffee, and condensed milk. On the other hand there was an increase in the import of iron and steel wheels, lead, ground sulphur, jute, manila hemp, vegetable fibres, raw wool, and wheat. As to the decrease in exports it was largely the result of certain government measures noted below and of shortage of transport facilities, and it showed itself most acutely in foodstuffs which were more than one-half less than in 1917, especially in the case of sardines, rice, barley, corn, beans, and other vegetables, and olives, oranges, wine, and fodder, etc., but there was also a decrease in the export of partly manufactured articles especially of cast iron and forged iron and steel products, chemical products, soap, cotton yarn, woven garments, etc. The decrease of exports caused suffering both in agriculture and manufacturing districts, which was only partially offset by an increase of exports of certain articles, namely cement, manganese ore, salt, nuts, and dried fruits.

The exports to the United States in 1918 were \$21,600,114 and in 1917 \$39,025,276. The following table shows the declared exports to the United States, the Philippine Islands, Porto Rico, and Hawaii, in 1917 and 1918:

SHIPPING. The vessels entered in 1917 were 14,207 with a tonnage of 9,683,257 and in 1918 12,475 with a tonnage of 8,745,084. Vessels cleared in 1917 were 14,876 with a tonnage of 9,738,294, and in 1918 13,836 with a tonnage of 7,203,843. The Spanish merchant marine consisted on Jan. 1, 1918, of 580 vessels and 780,767 tons. The highest point was reached in 1915 when there were 857 vessels with 904,727 tons, but it decreased steadily until Jan. 1, 1918. As to the war losses the number of vessels torpedoed during the war down to June, 1918, excluding those of less than 250 tons, was 51 with 123,176 tons and the number of vessels lost by mines was 6 with 16,731 tons. Spanish shipping was to a large extent requisitioned by the government during the war, for the purpose of distributing raw materials and finished products according to the greatest needs. Before 1918, 180,000 tons of shipping had been placed at the disposal of the government by the ship-owners. A committee was appointed to determine the number and names of the ships which should make up this tonnage. The position of each ship was reported and the ship-owners were required to recall any vessel when it was requisitioned by the committee. The coastwise lines were organized and a large amount of shipping, estimated at 250,000 tons' capacity, was designated for this purpose. A measure to preserve in native hands the Spanish merchant marine was the prohibition of the sale of Spanish ships to foreigners. This had formerly been confined to certain classes but during the war was applied to all vessels flying the Spanish flag. On June 12, 1918, a royal decree provided for the requisition of the entire Spanish merchant marine to carry such materials as were deemed of vital interest to the country and freight contracts could be canceled or suspended when the ships were called into the service.

RAILWAYS. Railways in Spain had a mileage in 1917 of 8993 miles, of which 6880 were of the usual gauge and 2106 of varying gauges. In 1918 only about 14 miles of new road were built. The development of the railways is one of the most important economic questions in Spain. It has been proposed to lay double tracks from Madrid to various points on the coast such as Barcelona, Valencia, Cadiz, etc., as an indispensable means of opening up the trade of the country. The cost of this project is placed at over \$600,000,000, and the time required for com-

Consular districts	To United States		To Philippine Islands		To Porto Rico	
	1917	1918	1917	1918	1917	1918
Almeria	\$2,020,856	\$2,390,670				
Barcelona	8,081,991	3,555,202	\$705,338	\$628,883	\$448,951	\$181,836
Palamos	1,458,492	1,099,016		222		
Tarragona	2,472,709	3,118,463	1,319	378	831	999
Bilbao	1,860,463	232,722	6,765	16,722	14,224	224
Gijon	5,542			1,275		
Madrid	587,188	106,073	70,824	33,699	10,636	5,378
Malaga	4,809,673	1,848,346	7,397	10,049	119,391	18,500
Palma de Mallorca	390,682	469,643	1,606	255	71,417	58,492
Santander	66,224	58,046				106
Seville	4,693,314	1,915,775	57,783	18,021	196,613	211,005
Cadiz	802,608	473,267	60,457	4,608	17,132	6,828
Huelva	5,227,572	1,610,555				
Teneriffe	232,564	201,471			26,715	6,098
Las Palmas	47,365				14,608	
Valencia	2,429,565	304,671	296		26,657	23,593
Alicante	2,215,601	2,956,473	1,983	3,210	32,872	4,748
Vigo	129,128	13,905	63,580	7,136	7,370	
Corunna	13,900	3,551			15,624	
Total	\$37,044,937	\$20,357,849	\$977,298	\$724,458	\$1,003,041	\$517,807

pletion was estimated at five or six years. The government on March 8, 1918, authorized the laying of the tracks of the first three sections of the line across the Pyrenees from Ripoll to Puigcerda and a new line was proposed from Zafra to Villanueva del Fresno. The year 1918 was financially unsatisfactory to the railroads for while the profits were high, the running expenses were higher still.

FINANCE. Revenue for 1917, \$409,059,190; expenditure, \$413,049,441. Revenue for 1918, \$331,263,367; expenditure, \$334,181,563. Budget estimates for 1919-20: Revenue, 1,648,800,068 pesetas; expenditure, 2,065,065,606 pesetas. National debt on Jan. 1, 1919: 9,421,586,036 pesetas of which 911,100,000 pesetas were external debt.

The budget estimates for 1919-20 as indicated above showed a very considerable deficit. At the close of the year the deficit as shown by these figures was causing much unfavorable comment in consequence of which the ministry resigned. The distribution of taxes also caused discontent among the people.

GOVERNMENT. Executive power is vested in the king, who acts through a council of ministers, and legislative, in the Cortes or parliament of two houses, the Senate and the Congress. The King Alphonso XIII was born May 17, 1886, his succession dating from his birth. The ministry as constituted April 15, 1919, was as follows: Prime Minister, Señor Maura; Foreign Affairs, Señor Gonzales Montoria; Justice and Worship, Viscount Matamala; War, General Luis Santiago; Marine, General Mirando; Finance, Señor La Cierva; Interior, Señor Goicoechea; Public Instruction, Señor Silio; Public Works, Señor Gallardo Ossorio. See below.

HISTORY

CATALAN QUESTION. The independent spirit of Catalonia which in late years has shown itself in forms dangerous to the existing government dates back some 50 years when an attempt was made to revive the Catalanian speech. In its origin it is based on the tradition of independence but from the political point of view it is economic in its nature. The revival of the Catalanian language 50 years ago manifested itself in various meetings of the literary and aristocratic classes where the Catalanian language was spoken. A literary club was founded which became a sort of academy of the Catalanian language. The so-called floral games were instituted; everywhere people began to interest themselves in the Catalanian dialect; and poets sang the traditional exploits of Catalanians. Gradually there developed out of this literary movement a movement for self-government and a similar tendency showed itself in other parts of the kingdom but it was stronger in Catalonia than elsewhere. In business and political circles the question of an independent administration for Catalonia constantly came up for discussion and two tendencies showed themselves; the first conservative and the other liberal and progressive. The conservative looked to an independent local government at Barcelona and dreamed of a sort of leadership over the rest of the country. The advanced liberals favored a federal republic somewhat on the model of Switzerland. During the war the aspirations of the Catalanians were intensified

and from being merely local in their scope developed a nationalist spirit. In that part of Spain there was much sympathy with the Allies on account of their programme in respect to the protection of small nationalities. When the war turned in favor of the Allies the chiefs of the different Catalanian parties from the extreme conservatives on the one hand to the republicans on the other united for the purpose of demanding from the central government a grant of Catalanian sovereignty including the complete administrative, judicial, and parliamentary independence of the region. An attempt was made to interest President Wilson and obtain the support of the League of Nations. The conservatives threatened the monarchy with the setting up of a republic and suppression of payment of taxes and of the regular administration and even warned it that on Jan. 1, 1919, a provisional government would be established in Catalonia. Not one of these threats however was carried out, for in the first place the army took a firm stand against the Catalanian nationalists of all shades, and in the second place economic and social conditions cast the Catalanian programme into the shade. Catalonia on an average produced manufactured products in normal times to the amount of 1,700,000,000 pesetas and sold by far the greater part of them in other parts of Spain. The independence of Catalonia would bring about a boycott as it was unpopular throughout the rest of Spain and this would ruin the region. Hence the people did not respond to the demand of their leaders when called upon to take these radical measures. The conservative Catalanians having failed, the republicans thought that they might carry their point but they soon saw that they had behind them only a small fraction of the army. Moreover the mass of the workingmen who formerly trusted them had during the last four years become absorbed in the trade union movement. Among the strongest partisans of Catalanian independence were the members of the employing classes and these were opposed to the programme of the trade unions. The central government meanwhile pursued the policy of compromise toward the workingmen and made important concessions. It was thus lined up with the working classes against the element which was fighting for the independence of Catalonia. A lock-out at Barcelona was examined as a strike on the part of the small proprietors of unionized shops which had for its aim the establishment of an absolute government and was thus opposed to a policy which would bring Spain into harmony with France and England. That this policy had been resolved upon by the government was indicated by the visit of the king to Paris and London in the autumn of 1919. In short the government at the close of the year seemed to have checkmated the extremists in Catalonia by concessions to the moderate demands for local self-government throughout Spain including Catalonia, and by concessions at the same time to the laboring classes. It appeared to have public opinion behind it and the Catalanian members of parliament were in its favor.

MINISTERIAL CHANGES. As noted in the preceding YEAR BOOK a new ministry was formed by Count de Romanones after the fall from power of the Marquis de Alhucemas on December 3d. It showed itself favorable to labor and

served (1872-1876) as Senator, and (1884-1912) as Director of the National Library of Peru. He founded the Peruvian Academy and was Director thereof until his death. Spain recognized his services by corresponding membership in the Real Academia Española, and the Real Academia de la Historia, and by dubbing him Knight Commander of the Real Orden de Isabel la Católica. Aside from his many other literary productions, he created a new genre, the *tradiciones*, a form of short story in which he reproduced the brilliant pageant of the social and political life of the vice-royalty in its hey-day. The Spanish Royal Academy suffered four serious losses: in May, Eduardo de Hinojosa, investigator of juridical questions in Spanish history and literature; in June, Augusto González Besada, statesman, critic, and historian of Gallegan literature, and later Javier Ugarte (who had taken his chair only a year ago), and Francisco Commelerán (the Academy's Censor, and the oldest of its members), professor of Latin and Castilian in the Instituto Cardinal Cisneros and author, among other things, of a *Diccionario clásico-etimológico-latino-español*.

LITERARY CRITICISM, in one form or another, was again fairly well represented: Andrenio (pen-name of Gómez de Baquero), *Novelas y novelistas*; R. Pérez de Ayala, *Política y toros* (very keen analysis of various phases of modern Spanish life); J. Sánchez Rojas, *Castilla y Cataluña* (study of regionalism, pointing out what Castile and Catalonia have to offer each other); G. Zaldumbide, *José Enrique Rodó* (careful study of the life and works of this great Uruguayan); R. Cansinos-Assens, *Poetas y prosistas del novecientos* (concerning Spanish and Spanish-American writers), and *El divino fracaso* (volume of essays); Max Henríquez Ureña, *Rodó y Rubén Darío* (the distinguished Dominican writer, now resident in Cuba, gives not only a whole-souled appreciation of these two great Spanish-American writers, but also two useful bibliographical catalogues), and *El ocaso del dogmatismo literario*; José Montero, *Pereda* (a detailed study); Luis Antón del Olmet y José de Torres Bernal, *Palacio Valdés* (in the series *Los Grandes Españoles*); Eugenio d'Ors, *Grandeza y servidumbre de la inteligencia*; Quintiliano Saldaña, *Miguel de Unamuno* (vol. i of a series called *Mentalidades españolas*); Juan Cueto, *De mi ideario* (which the author calls *Divagaciones de un militar demócrata alrededor de varios temas de actualidad*, and which represents the progressive and pro-Ally ideals of an important element of the rising generation in Spain); El Caballero Audaz, *Lo que sé por mí* (Series 7 and 8 of these essays); Tomás Navarro Tomás, *La fonética experimental en España—Manual de pronunciación española*; Julio Casares, *Crítica efímera* (two vols. of scholarly grammatical and lexicographical notes, with a prologue by R. Menéndez Pidal); N. Alonso Cortés, *Zorrilla, su vida y sus obras* (vol. ii, dealing with the period 1845-71, during which Zorrilla had some of his most interesting experiences in the old world and in the new); R. Menéndez Pidal, *Manual de gramática histórica española* (4th ed., revised and enlarged) and *Crónicas generales de España* (3d ed., thoroughly revised and enlarged); J. Cejador y Frauca, *Historia de la lengua y literatura castellanas* (vol. ix. x. xi, dealing with the period from 1870 to 1907, and paying considerable attention

to Spanish-American writers); Rufo Mendizábal, *Monografía histórico-morfológico del verbo latino*; Francisco A. de Icaza, *Sucesos reales que parecen imaginados* (series of studies awarded a prize by the Royal Academy); Alvaro Alcalá Galiano, *El fin de la tragedia: La "Entente" victoriosa y España neutral*; Pío Baroja, *Las horas solitarias* (following his personal confessions in *Juventud* and *Egotría*, he gives us here a kind of diary of his thoughts during one year), and Rafael Altamira, *Libro de máximas y reflexiones* (the frank, intimate outpourings of a mature mind and a great heart).

POETRY offered somewhat less of interest: Rafael Lasso de la Vega, *El corazón iluminado y otros poemas*; Pablo Cavestany, *Madrigales*; F. Mon Ibáñez, *Bajo la Estrella Roja (Poemas de la guerra)*; Ramón del Valle-Inclán, *La Pipa de Kif*, and a new volume of the *Obras* of Juan Ramón Jiménez, *Piedra y cielo* (1917-18).

DRAMA presented some very good material. Manuel Linares Rivas won a brilliant success with his *Cobardías* in which he attacks all kinds of moral cowardice on the part of the good, who permit the triumph of the wicked. He also successfully dramatized, in collaboration with the original author, the novel of Alejandro Pérez Lugín, *La Casa de la Troya*, which, as was reported in these columns in 1916, was awarded the Fastenrath Prize of that year by the Royal Academy. The Alvarez Quintero brothers have continued to produce scintillating plays, among which we mention *Febrerillo el loco* (a keen study of the effects of the passion for wealth) and *La Calumniada* (which was a great success as staged by María Guerrero and Fernando Díaz de Mendoza. The two brothers have published also a volume entitled *La madrequita—cuadros de costumbres* (only about half the volume represents the drama). G. Martínez Sierra produced *El corazón ciego*, and Eduardo Marquina gave us *La morisca*, a lyric drama. Both were well received. Four plays by Jacinto Benavente should be mentioned: *La ley de los hijos*, *Richelieu* (a well-received adaptation of Bulwer Lytton's *Richelieu*), *La vestal de occidente*, (dealing with the reign of Queen Elizabeth); and *Por ser con todos leal, ser para todos traidor* (treating of the first sparks of independence in Spanish-America).

FICTION fared somewhat better than the other genres. Pío Baroja continued his *Memorias de un hombre de acción* with the volume *La Isabelina*, which treats of Madrid at the death of Feriando VII. A. Hernández Catá registered a double success: *Fuegos fatuos* (*Novelas*), and *Los siete pecados* (*Cuentos*). The *Jardín de las hadas* by Alvaro Alcalá Galiano is a volume of fantastic tales à la Oscar Wilde. G. Martínez Sierra, in addition to the drama previously mentioned, published *Pascua Florida*, a novel. Vicente Blasco Ibáñez, despite his travels, produced the bulky novel *Los enemigos de la mujer*. Azorín is beginning the publication of his *Obras*, and the first volume bears the title *El alma castellana*. It contains some of his best work. The journalist E. Gómez Carrillo is likewise collecting his *Obras completas*, and the first volume is called *El libro de las mujeres*. José Más, with *La Estrella de la Giralda* and *La Orgía* (3d ed.), both dealing with Sevillian life (as had also his first novel, *La Bruja*, now in its 2d ed.), is hailed as a new novelist of whom much may be expected. Guillermo Díaz-Caneja

was awarded the annual Fastenrath Prize by the Royal Academy for his novel *El sobre en blanco*, which has been very well received by the critics.

The Spanish Royal Academy completed its series of fac-similes of first editions of works of Cervantes, destined for use in the general competition for a glossary of the works of Cervantes, by producing volume VI, containing *Persiles y Sigismunda* and the *Viaje al Parnaso*. It continued its new edition of *Obras de Lope de Vega* (edited by Cotarelo), with volume V, containing a few hitherto unpublished plays, and many that have not been reprinted since the seventeenth century. The "Chirel" Prize was awarded to a volume of articles relating to customs and written by Wenceslao Fernández Flórez, under the title of *Las gafas del Diablo*.

SPANISH OPERA. See Music, *Opera*.

SPIRITUALISTS' ASSOCIATION. An association whose belief is that "spiritualism is the science, philosophy and religion of continuous life based upon the demonstrated fact of communication, by means of mediumship, with those who live in the spirit world." It was incorporated in 1892 to nationalize the work of local Spiritualist societies in the United States and to expand the movement. The 27th annual convention was held in Pittsburgh, Pa., on Oct. 21-25, 1919, and was considered highly successful, much enthusiasm over the work and progress of the past year being shown. Legislation in all States for the protection of the Spiritualists as a religious denomination was strongly urged. Trustee Mark A. Barwise, Curator of the Bureau of Phenomenal Evidence, submitted a report on the work of the bureau during the year. He and his assistants are collecting for publication signed evidences of spiritual manifestations, with the ultimate idea of using this material for propaganda, and to convince critics of the movement. The organization had in 1919 over 1000 local working societies. State organization is maintained in 22 States beside 500 other local societies, and 32 camp meeting associations. There are more than 200 churches and temples, together with camp meeting property, valued at about \$6,500,000. There are about 500 ordained ministers, with 1500 public mediums, and 600,000 adherents. The officers elected for 1920 were: President, George D. Warne; secretary, George W. Kates; treasurer, Cassius L. Stevens. The headquarters of the association are in Washington, D. C.

SPITZBERGEN. This archipelago has risen from its anomalous position as No Man's Land to the dignity of a dependency. The Supreme Council in Paris, acting on the recommendation of its Spitzbergen commission, approved on November 21st an agreement granting to Norway political suzerainty over the archipelago. This proposition gave rise to parliamentary enquiry in England, where some opposition to such award developed but the British government declared that the conditions adequately safeguarded British interests. Discovered by the Dutch, occupied by England during the whale fishery, and exploited later by Russian hunters, the archipelago was practically abandoned to the scientific and exploratory work of the Scandinavian nations. The discovery of easily worked semi-bituminous coal fields awakened interest in this Arctic land about 20 years ago, and the invasion of the archipelago by exploiters

naturally caused conflicts, as there existed neither law nor government. The pre-war conference on the sovereignty of Spitzbergen was fruitless owing largely to excessive claims by Germany. Although other minerals are said to be present in quantities of economic value, attention has been devoted to coal. An output of some 40,000 tons in 1912 had increased in 1918, despite war conditions, to shipments of 100,000 tons to Scandinavian ports alone. The coal areas preëempted and claimed by the various nationalities are approximately: British companies 4000 square miles; Norwegian 900 square miles; Swedish 350 square miles, and Russian 100 square miles. The large American interests have been sold to European companies. The German holdings were seized by Great Britain during the war. Mines were worked throughout the entire year. Game is said to be practically exterminated.

SPOONER, JOHN COIT. Prominent United States Senator died in New York City, June 11. He was born at Lawrenceburg, Ind., Jan. 16, 1843, and graduated at the University of Wisconsin in 1864, afterwards studying law at Yale and Columbia Universities. He fought in the Civil War and was brevetted major in the Wisconsin infantry. In 1867 he was admitted to the bar and for many years practiced in Wisconsin. He was a member of the Wisconsin Assembly in 1872. From 1882 to 1885 he was a regent of the University of Wisconsin and in the latter year was elected United States Senator. He was elected again in 1897 and retained his seat till 1907, after which he resumed his law practice in New York. He was one of the most prominent of the Republican Senators and was distinguished as a lawyer. He was a member of the British American Joint High Commission in 1898.

SPORTS. Articles covering the activities in the various sports during the year 1919 will be found under such titles as **ATHLETICS, TRACK AND FIELD; BASEBALL; BOWLING; FOOTBALL; GOLF; ROWING; TENNIS; YACHTING, ETC.**

SQUASH. See **RACQUETS**.

STATE BANKS. According to the Annual Report of the comptroller of the currency, there were in the United States on June 30, 1919, a total of 21,338 State, savings, and private banks, and loan and trust companies, an increase of 163 over the previous year, and of 1019 since June 20, 1917. Total resources were \$26,381,000,000, as compared with \$22,371,000,000 on June 29, 1918, an increase of 17.9 per cent. Loans and discounts aggregated \$13,981,000,000, an increase of about \$1,500,000,000 over 1918. Other items of resources were: other investments (bonds and securities), \$7,178,000,000; cash on hand, \$572,898,000; checks and other cash items, \$447,386,000; due from banks, \$2,788,000,000. Capital stock paid in amounted to \$1,319,000,000, an increase of 5.25 per cent over 1918. Total capital stock paid in, surplus, and undivided profits, were \$2,972,000,000, as compared with \$2,762,000,000 the previous year. Individual deposits were \$20,828,000,000.

Regular commercial State banks numbered 17,225, an increase of 637 over June 29, 1918, and of 1245 since June 20, 1917. The aggregate resources of these banks were \$11,701,606,000. Individual deposits were \$8,999,000,000; loans, discounts, and investments in bonds and securities totaled \$3,983,000,000.

of the strike and lockout to compel the satisfactory settlement of industrial disputes. The strike and lockout have never been as marked in major industries as during the last six months of this year.

Figures for the first six months of 1919 have been issued by the Bureau of Labor Statistics. These show that, while there were not so many strikes in 1919 as in 1918, they were of much greater importance. The totals are 1572 in 1919 as compared with 1811 in 1918. However, beginning with the month of May, the number of strikes in 1919 exceeded those in 1918. As usual, New York City led in the number, with Chicago second, and Detroit, Boston, Cleveland, Seattle, Toledo, Omaha and Philadelphia following. In by far the greater proportion, only males were affected. Although the strikes occurred in practically every industry, seven strikes stand out with special prominence. Also see *ARBITRATION AND CONCILIATION; TRADE UNIONS*.

SEATTLE GENERAL STRIKE. A general strike was called in Seattle on February 6th of 45,000 union men, in sympathy with 25,000 shipyard workers who walked out on January 21st to enforce demands for higher wages. Street cars, schools, restaurants, theatres, newspapers, and other industries were forced to suspend operations, while the culinary unions established soup kitchens to feed the strikers and others who might be dependent upon them for food. The significant figure in the strike was Mayor Ole Hanson, who declared that any person interfering with the municipal functions would be shot on sight, and who sent an ultimatum to the strikers that, unless the sympathetic strike was called off by February 8th, he would take steps to operate all essential industries, and would place the city under control of Federal authorities. In the meanwhile, the strike spread to Tacoma and to San Francisco, where 8000 shipyard mechanics walked out. By February 8th, 75,000 men had struck in Seattle, and the city was placed under martial law. A Citizen's Committee was appointed to deal with the strikers. Mayor Hanson took steps to alleviate conditions, and street cars started running again on February 9th. Through the efforts of the Committee, the strikers returned to work on February 11th, without having gained their object. The original shipyard strike continued until March 10th, when it was compromised.

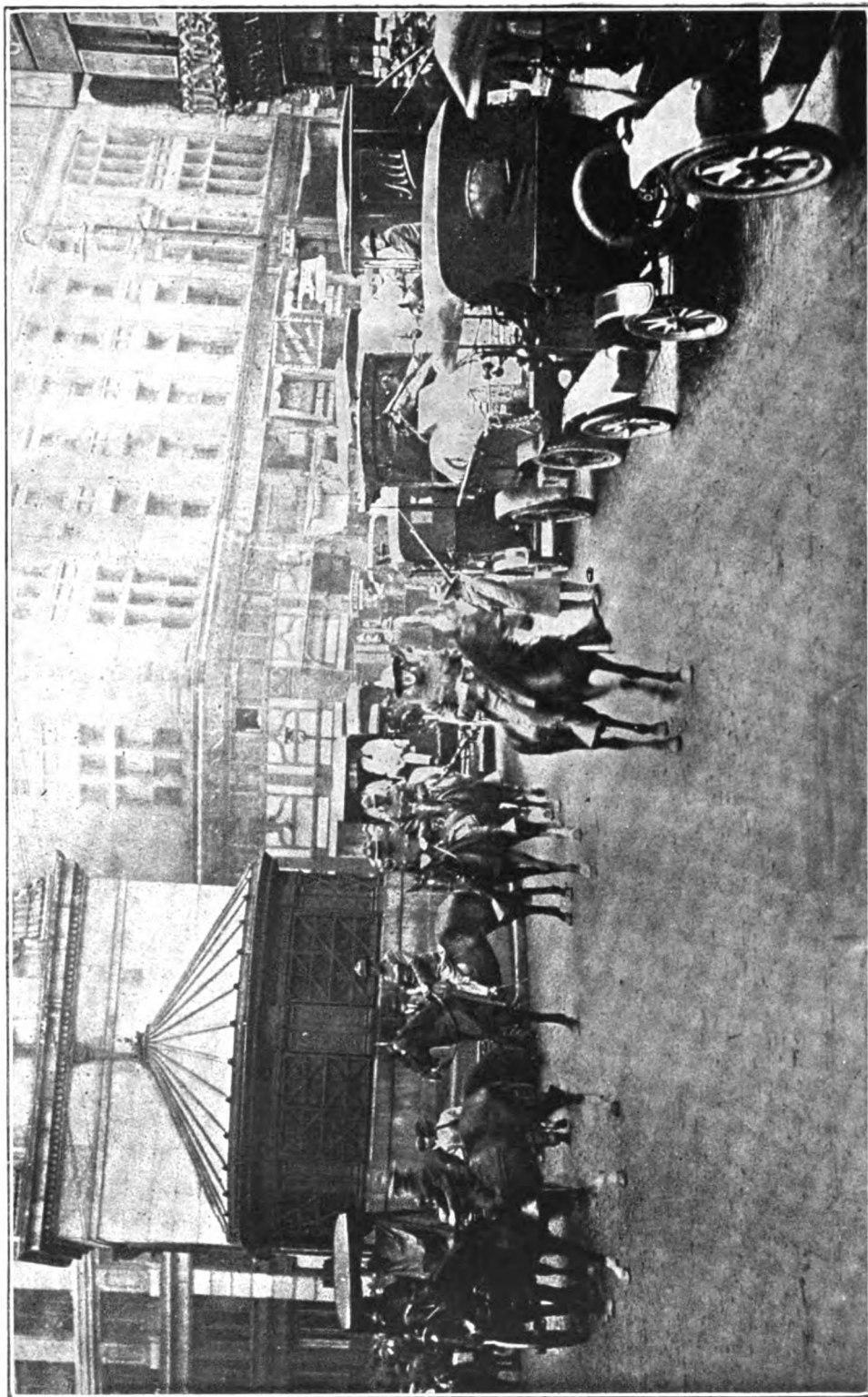
BOSTON POLICE STRIKE. On Sept. 9th, 1500 policemen in Boston struck as a means of enforcing the recognition of their newly formed union and of their right to affiliate with the American Federation of Labor. Rioting and disturbance immediately resulted, and a Provost-Guard was brought from the navy yard to quell the disturbers. On the following morning, Mayor Peters issued a proclamation calling on all law-abiding citizens to help the authorities to maintain order. Nevertheless, many stores were broken into, and citizens robbed. On September 10th the city was placed under martial law, and cavalry and 5000 members of the State Guard constantly patrolled the streets. On Sept. 11th, there was further disturbance, and Gov. Coolidge telegraphed the Secretary of War and the Secretary of Navy asking for Federal military assistance in case the State Guard was not sufficient. On September 12th, President Gompers of the American Federation of Labor, re-

quested that the policemen return to *status quo* until after the Industrial Conference (see *ARBITRATION AND CONCILIATION*). However, the positions of all policemen were declared vacant, and a new police force was developed, largely of returned soldiers, at an increased wage scale.

ACTOR'S STRIKE. The refusal of the managers of the New York theatres to recognize the Actors' Equity Union, resulted in a strike early in August. There was much bitter feeling and one manager sued the actors for \$500,000 to cover losses sustained by the producers through the closing of the theatres. Chicago theatres promptly joined in the dispute. On August 17th, stage hands and musicians walked out in a sympathetic strike in New York City, where 16 theatres were forced to close. At this time, Federal mediators undertook the settlement of the trouble. The strike was settled September 6th, on the basis of the open shop, the demands as to salaries, overtime, and pay for rehearsals were mostly granted and arbitration of any further trouble was provided for. On September 7th, all the New York theatres were reopened.

STEEL STRIKE. On September 22d, a steel strike was called, affecting 268,710 employees in the steel industry scattered through the various States where plants are located. Claims had been advanced by the union covering collective bargaining, wages, hours, conditions, and principles involved in the industry. Judge Gary of the Steel Corporation refused to confer with these men on the grounds that the union-leaders were not authorized to speak for a large number of his employees, and that such a conference might be interpreted as a recognition of the closed shop. Much damage was done and there was rioting throughout Pennsylvania. An investigating committee was appointed by the Senate, which learned that the strikers were eager to arbitrate, but that the Steel Corporation refused to arbitrate, since a "question of moral principle cannot be arbitrated or compromised." In Gary, on October 4th, conditions grew so bad that General Wood was called to take charge of the situation. From that time on, the men gradually returned to work, and the trend was in favor of the employers. At the end of the year, although the strike was not officially ended, the mills were in operation, and the trouble had been subdued.

LONGSHOREMEN'S STRIKE. Between 4000 and 5000 longshoremen employed on North River piers in New York City, went out on strike October 7th, without warning and against the orders of their leaders, demanding an increase in wages. By October 9th, some 25,000 men were out, and shipping was badly tied up. Subsequently, the number of those on strike increased to 70,000 and their idleness kept 30,000 other men from working. Tons of food spoiled on the piers. On October 11th, the strike was spreading along the coast, threatening Baltimore, Boston, and Norfolk. On October 15th, the longshoremen accepted an offer of a 9 per cent increase and voted to return to work, but only 5000 actually did so. October 17th was marked by violence. On October 18th, a conciliation commission was named, consisting of Mayor Hylan, Paul Vaccarella, and James L. Hughes. On October 21st, 500 regular troops were landed to do guard duty, and unload ships. After much violence and internal trouble, the union receded from its extravagant demands,



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CAVALRY AND INFANTRY KEEP TRAFFIC MOVING IN THE BOSTON POLICE STRIKE

and the strike ended November 4th, with a compromise increasing wages 22½ per cent. There had been 495 ships tied up in New York harbor.

PRINTER'S STRIKE. Ten thousand pressmen were locked out on October 1st by 250 printing firms in New York City, after the local unions had been outlawed by their international unions for refusal to abide by their contracts. The local unions demanded higher wages, and a 44-hour week. Many publications, including prominent magazines, were affected, more than 150 magazines and 300 trade papers being tied up. The strike was settled on November 25th by the printers and pressmen returning to work under orders of their international officers at an increase of \$6 per week. They had demanded \$14 and refused to arbitrate a demand for the 44-hour week.

COAL STRIKE. On Oct. 6, 1917, the operators and miners in the coal mining industry signed an agreement which was to be in force for the duration of the war. On Oct. 24, 1918, Fuel Administrator Garfield refused a wage increase to bituminous workers. On Sept. 22, 1919, the United Mine Workers' convention adopted demands for a 30-hour week and 60 per cent increase in wages, and instructed the officials to call a general strike November 1st, in case a satisfactory agreement was not secured by that time. From September 25th–October 24th the operators and workers were in joint wage conference without agreement. On November 1st, a strike of 425,000 bituminous miners began. The Indianapolis Federal Court, on an immediate application of Attorney-General Palmer, issued a temporary order restraining the miners' officials from directing the strike, and on November 8th, the same court issued an injunction ordering the recall of the strike order. On November 11th, this order was recalled, and on November 14th, a joint conference reopened. This conference was unable to reach any agreement. However, at the end of the year, the dispute was to be settled by a court of arbitration, although, on December 22d, the Executive Committee of Coal Operators denied that they had agreed to accept President Wilson's plan for adjustment, which was "to refer the matter under dispute to a board of arbitration for determination." Due to the drop in coal production, it was necessary to return the country to the war basis of conservation of fuel, and Fuel Administrator Garfield issued drastic orders against unnecessary consumption of coal.

GREAT BRITAIN. Figures given in the *Labour Gazette* for September, 1919, show huge increases in labor disputes during 1919. Three times as many people were involved as in the previous year, and seven times as many work days lost. The totals from January to August are: In 1919, 1029 disputes as compared with 815 in 1918; 1,885,000 work people involved as compared with 658,000; 23,145,000 work days lost as compared with 3,438,000. Largest trouble was found in coal mining, having 865,000 workers involved in disputes, textiles with 488,000 and engineering and shipbuilding, with 240,000.

The important strikes were: 150,000 coal miners January 9th–22d for a stoppage of 20 minutes per shift for meals, and other concessions which were granted; 100,000 miners March 24th–30th with a national demand for wages, lower hours, and the nationalization of mines,

which was set aside pending the miners' national ballot offered by the government; 190,000 shipbuilders, starting in January and ending gradually, demanding wages and hours with varying results; 450,000 textile workers June 23d–July 10th, demanding increase in wages and lower hours, which was compromised; 75,000 coal miners July 21st–27th, demanding a change in piece-rates, which was compromised; 150,000 coal miners July 16th–August 12th, demanding increase in piece-rates which was compromised; 500,000 railway employees September 25th–October 5th, objecting to governmental reduction of wages, and obtaining a continuation of wages on a war basis. For coal situation, see INDUSTRIAL RECONSTRUCTION.

CANADA. *The Monthly Labor Review* for May summarizes the report of the Canadian Department of Labor for 1918. In that year, there were 196 strikes in the Dominion, as compared with 148 in 1917. The number of employees involved shows an increase from 48,329 to 68,489. However, these strikes were more rapidly settled, and there was a reduction in workdays lost from 1,134,790 to 763,341 days.

Of these 196 strikes, 72 were due to requests for increased wages, 12 for recognition of union, 13 were sympathetic strikes. Most of the strikes were of minor importance, 89 per cent involving less than 1000 employees, and 36.7 per cent being settled in less than five days.

It is worthy of note that 113 strikes were terminated in favor of the employees, 41 in favor of the employers, and 42 were compromised or undetermined. With regard to the means of settlement, 102 were settled by direct negotiation, 34 by conciliation or mediation, 21 by arbitration, and four by boards of conciliation.

JAPAN: Osaka, the principal industrial centre of Japan, experienced a series of labor disputes during the summer. The average increase in wages demanded was approximately 30 per cent. In almost every case the workmen were met at least halfway by the employers and the duration of the strikes was seldom over two days. Over 11,000 workmen employed in nine establishments struck in July, and 2000 in six establishments early in August. Most of the actual or threatened strikes were limited to individual concerns, although there were instances of specific trade strikes, such as that of the stonemasons and that of the coopers. Cooperation between workpeople belonging to a number of concerns engaged in the same industry is impossible because of a police regulation prohibiting the instigation of any strike. In a few cases, a society known as the Yu-Ai-Kai (Friendly Society), took up the case of its members and arranged terms with the employers, but in the case of a dispute in an electrical machinery works in Kyoto, the society had to hand over the task of mediation to the Chief of Police. This strike lasted five days, the longest of any in that district.

ITALY. Labor disturbances began early in July, when food rioters were fired upon by carabinieri on July 4th. Shops were sacked, occasioning a damage of more than \$100,000 and the red flag was hoisted in Tuscany and Romagna. Mob violence increased. A general strike was declared in Naples, but lost impetus, due to the voluntary cutting of prices by the shopkeepers and the issuing of a decree by the Italian King inflicting a penalty of 10,000 lire

(\$1930) for all food profiteers, and the government compliance with the demand of the strikers that the supply trains for Kolchak armies in Siberia be held up. In anticipation of a general strike called by the Labor Confederation for July 20th-21st, 50,000 armed citizens were organized in Florence, thus preventing activity.

SPAIN. According to censored dispatches, the Congress of Spanish Employers, sitting at Barcelona, declared a lockout on October 26th, to take effect throughout Spain on November 4th, affecting over 1,000,000 workers, and closing all the principal industries, trades and professions, even schools and public works. The lockout went into effect. It was stated on November 13th that the opposing organizations had come to terms, but two days later, the rupture was renewed by strikes succeeding the general lockout. This act on the part of the employers was aimed at the Confederacion General del Trabajo, the General Federation of Labor—an organization of great secrecy, described in the press as "ruling by assassination."

SWEDEN. Sweden has been undergoing a long series of industrial disputes and strikes. In January, there were strikes among the sailors and engine-drivers which assumed serious dimensions. A threatened strike by the railway men was averted by the government only by the granting of important concessions. Soon after, came a long strike in the Swedish match industry and among the stevedores at Gothenburg, as a direct outcome of the International Stevedoring Congress in Holland, which directed a blockade of all goods classed as war material. The most serious trouble was the printers' strike which lasted two months, resulting in the reduction of all papers. The fight was finally won by the owners. In the first week in October, a lockout was declared in the wood-working trades, in which all conciliatory attempts proved unsatisfactory. In the meantime, labor legislation has been given additional impetus by the enhanced importance of labor.

STURGE, WILLIAM ALLEN. A British ethnologist, died in 1919. He was born at Bristol in 1850, studied medicine, and practiced for nearly 30 years at Nice. He was the author of various papers on medical subjects, and an authority on pre-historic implements and weapons in stone and bronze.

STYRIA. A former crownland of Austria before the downfall of the Austro-Hungarian Empire. Area, 8662 square miles; population at the census of Dec. 31, 1910, 1,444,157; estimated, 1913, 1,467,758. In 1910 the Austrian subjects numbered 1,394,699, of whom 70.5 per cent spoke German and 29.37 per cent Slovenian. Capital, Graz, with an estimated population of 156,500. The territory was incorporated in the new Jugo-Slav state. See JUGO-SLAVIA.

SUBMARINES. See NAVAL PROGRESS.

SUBWAYS. See RAPID TRANSIT.

SUDAN, ANGLO-EGYPTIAN. An African territory under British authority, situated between Egypt and Uganda, and extending from the Red Sea to the limits of Wadai in central Africa. Capital, Khartum. Area, about 1,014,400 square miles; population, estimated, 1917, at 3,400,000. The chief towns are Khartum with 16,325 inhabitants in 1917; Omdurman, former Dervish capital, with 84,022; Khartum North with 10,828. Reported values of imports and exports in 1917 were £E3,102,117 and £E3,490,565 re-

spectively. Revenue and expenditure according to the budget estimates of 1918, balanced at £E2,255,000. Total length of railway, about 1500 miles. Acting Governor-General and Sir Dar at the beginning of 1919, Maj. Sir L. O. F. Stack.

On December 21st it was reported that a battalion of British troops in Sudan had suffered reverses resulting in the death of two officers and between 20 and 30 soldiers. On November 15th, the Equatorial Battalion under Major White was attacked by a considerable force of tribesmen, losing seven killed and nine wounded, and again on December 8th when the natives fell upon the advance guard of the column and drove it back. Later reports indicated that the column was advancing without further resistance.

SUGAR. This commodity continued to be a source of concern the world over. There was a world shortage compared with pre-war production, estimated at about two million tons, as there had been since the war began. There was practically no diminution in this shortage in the 1919-20 crop. As the shortage is equivalent to about 13 per cent of the normal crop its effect is widely felt in all countries dependent on imports.

Sugar was scarce and high in European countries, many of them being on a sugar ration. In the United States there was much difficulty in securing supplies throughout the year, and the demand was unusually large, attributed to prohibition and to hoarding. Prospect of the relinquishment of control through the dissolution of the Sugar Equalization Board at the close of the year led to apprehension and the expectation of higher prices, but a bill continuing the board through 1920 passed Congress. The per capita consumption of sugar in the United States, judging from the first nine months, was equivalent to about 92 pounds for the year, against 73 pounds in 1918, 83 pounds in 1917, and nearly 87 pounds in 1914. This would indicate an increase of about five pounds per capita since 1914. The Sugar Equalization Board estimated that the United States consumption in 1919 would be over half of the world's total exportable surplus and over one-fourth of the total world's production.

The world's sugar production for the crop year 1919-20, as estimated by Willett and Gray in December, was 12,305,394 tons of cane sugar and 4,084,000 tons of beet sugar, a total of 16,389,394 short tons as compared with 16,418,580 tons in 1918-19, and 17,287,577 tons in 1917-18. The cane sugar crop of Louisiana was less than half that of 1918. The total cane sugar crop of the United States, including the Virgin Islands, was 1,056,631 tons; that of Cuba, 4,300,000 tons; the British West Indies, 218,000 tons; the French West Indies, 55,000 tons, and Santo Domingo, 180,000 tons. The estimates for other leading countries were as follows: Mexico, 85,000; Central America, 30,000; South America, 792,000; Asia (including the Philippine Islands), 4,600,763; Australia and Fiji Islands, 335,000, and Africa, 582,000 tons. The beet sugar crop in the United States was estimated at about 800,000, as compared with 674,892 in 1918, and 682,867 in 1917. The total European beet sugar crop shows an increase of about 600,000 tons over 1918-19, but is still far short of the pre-war production.

The war gave quite an impetus to the dis-

cussion of the need for home grown sugar in England. It was one of the scarcest commodities, and a year after the armistice the Food Ministry was obliged to ration it. An estate of nearly 6,000 acres was purchased by the Sugar Beet Growers' Society with the financial assistance of the government, and is to be developed as a test of commercial beet growing on a large scale.

The importance of the growing of sugar beet seed in the United States has increased in view of the European shortage. Although nearly six thousand acres of beet seed were grown in 1918, yielding over 6,000,000 pounds of seed, it has been necessary to import about twice as much seed as was grown at home. In 1919 there was a production of approximately 6,000,700 pounds of seed, which was somewhat less than earlier estimates. A bulletin entitled *The Sugar Beet Industry in the United States*, by C. O. Townsend, was issued by the U. S. Department of Agriculture (No. 721), and another (No. 726) on *Farm Practice in Growing Sugar Beets in Three Districts in Colorado*, 1914-15. A manual entitled *The Sugar Beet in America*, by F. S. Harris, was published during the year (New York, 1919). See also FOOD AND NUTRITION.

SULPHUR. Sulphur to the amount of 1,353,525 long tons was mined in the United States in 1918, compared with 1,134,412 long tons in 1917 and 649,683 in 1916. The total amount of sulphur shipped in 1918 was 1,266,709 long tons, valued at approximately \$27,868,000, as against 1,120,378 long tons, valued at nearly \$23,987,000 in 1917, and 766,835 tons of a value of \$12,247,000 in 1916.

Imports of sulphur diminished steadily over the period 1914-18. In the former year a total of 26,135 long tons valued at \$477,937 was brought into the country, but by 1917 imports of this article had diminished to 1015 long tons, of a value of \$29,340, and in 1918 only 82 long tons, valued at \$9542 came in. However this decrease in imports in five years of 26,053 long tons was more than offset by a growth in domestic production during the same period of 935,835 long tons. Some of the forms in which sulphur is imported are: Crude sulphur (the principal one) flowers of sulphur, sulphur lac, and refined sulphur.

Exports in 1918 were greater than in 1916 but less than in 1917. A total of 131,092 long tons were exported in 1918, valued at \$3,626,638, 152,833 long tons valued at \$3,504,661 in 1917, and 128,755 long tons, valued at \$2,505,857 in 1916.

SULZER, CHARLES AUGUST. Former delegate to Congress from Alaska, died in Alaska in April. He was born at Roselle, N. J., Feb. 24, 1879, and studied at the United States Military Academy 1899-1901. He served with the New Jersey Volunteers during the Spanish-American War. Afterwards (1907) he went to Alaska where he engaged in mining and in business and where he was chosen a member of the Territorial senate in 1914. He was elected delegate to the Federal government for the term 1917-19.

SUMATRA. In 1919 there was a remarkable recovery in the export trade of the east coast on account of the improvement in shipping conditions. Trade, however, did not return to the normal conditions of the period before the war. The balance of trade at that time was in

favor of Sumatra, especially on account of the exports of tobacco, rubber, etc. The island like other parts of the world suffered from the high cost of living, including greatly increased prices of staple articles such as rice. During the war the products of the east coast were shipped directly to the consuming markets, instead of by way of the Netherlands. In 1914 the chief leading European products among exports were coffee, tea, tobacco, and rubber. In all of these there was a marked increase in 1918. The total area planted in rubber on June 30, 1919, was about 340,000 acres, an increase of 30,000 acres in the course of six months. The exports of tobacco also increased and returned nearly to the normal point. Oil production decreased.

SUN. See ASTRONOMY.

SUNDAY SCHOOL UNION, AMERICAN. Founded in 1817, this is a volunteer association of members of different denominations whose purpose is to teach Christian truths, especially to the young. Missionary work is carried on throughout the United States in organizing Sunday schools, and distributing religious books and magazines. During the fiscal year ending March 1, 1919, the Union organized 862 schools, with 2989 teachers and 29,386 pupils; reorganized 700 schools, with 2368 teachers and 22,574 pupils; aided 2440 schools, with 13,900 teachers, and 170,125 pupils; visited 171,973 families; brought 6906 pupils into existing schools, with 4364 conversions; established 209 prayer meetings; 95 Young People's Societies; opened 152 preaching stations; organized 19 churches; built 13 churches; sold books and periodicals valued at \$18,629.42; and gave books and periodicals valued at \$3019.47. The combined circulation of the society's 11 periodicals was 2,020,137—a loss of 63,842 over the corresponding circulation for the preceding year. Seven new books were published during the year of which 22,000 copies were printed. Among these were Volumes 4, 5, 6, and 7 of the series entitled *Through the Bible Day by Day*, by Rev. F. B. Meyer, which makes it complete. Of the new editions of older books, leaflets, maps, wall charts, hymn books, and other Sunday school requisites 282,150 were made, making, with the new books of the year, a total production of 304,150. Besides this 950,037 publications were furnished to chaplains for use with the American forces here and abroad. To theological students 1365 volumes were distributed as aids in their study. This branch was somewhat restricted by lack of funds. A committee on War Service, did much valuable work during the year. 378 chaplains having received 658 shipments of literature to aid them in their work, besides 7575 wall charts and cards. In this work the society cooperated with the Y. M. C. A. Marked progress was reported by the missionaries among the mining camps, who said that the number of miners was greater and that in general they seemed more receptive to Bible teaching. Work among the negroes in the South was very encouraging. The negroes are being taught to respect the law, and to spend their time in useful pursuits. The amount of crime reported among these people has greatly decreased. However, about one-third of the force of missionaries was withdrawn due to the war, during the year, and not as much work was accomplished as had been hoped for. The Bible and Prayer League greatly enlarged its membership, having a total of 1755 on its roll. No dis-

trict conferences were held during the year due to the exigencies of the war. The treasurer's report showed an income of \$444,461.91, of which \$9217.72 was on hand at the time of the issuing of the report. Officers for 1919 were: President, Martin L. Finckel; secretary, William H. Hirst; treasurer, John E. Stevenson; educational adviser, George A. Barton. Headquarters at 1816 Chestnut St., Philadelphia.

SURGERY. See SHOCK.

SURINAM. See DUTCH GUIANA.

SWARTHMORE COLLEGE. A non-sectarian co-educational institution, located at Swarthmore, Pa. The enrollment for 1919-20 was 246 men and 248 women; the faculty numbers 46, eight new members being added in the year. Productive funds total \$2,251,136; the value of apparatus is \$275,429 and of grounds and buildings, \$1,615,721. The library contains 40,000 volumes, and the library is valued at \$56,914. Swarthmore was founded in 1864 by the Society of Friends. President, Joseph Swain, LL.D.

SWAZILAND. A British protectorate in South Africa, situated at the southeast corner of the Transvaal, and north of Zululand. Area, 6678 square miles; population, 1911, 99,959, of whom 98,733 were natives, 143 of other colored races, and 1083 whites. Later estimates (1914) place the population at 107,117. The chief products are corn, tobacco, millet, peanuts and vegetables. Rich mineral resources are reported, but are undeveloped with the exception of tin, of which the output in 1917-18 was valued at £60,221, and gold which had been worked before the war on a small scale. Live-stock in 1918 were as follows: Cattle, 150,000; sheep and goats, 250,000; pigs, 9000; horses, 500. Revenue and expenditures for 1917-18: £70,796, and £70,005 respectively. The protectorate is in the customs territory of the Union of South Africa. The seat of government is at Mbabane. Resident Commissioner at the beginning of 1919, D. Honey.

SWEDEN. A kingdom occupying the eastern and larger division of the Scandinavian peninsula in the extreme northwest corner of Europe; bounded on the east, south and west by the Gulf of Bothnia, the Baltic Sea, the Sound, the Kattegat and the Skager-Rak and on the west and north by Norway. Fifteen per cent of its territory lies north of the Arctic circle, but the comparative nearness of the Gulf Stream tempers the climate.

AREA AND POPULATION. The area is placed at 173,035 square miles, and the population was estimated Dec. 31, 1917, at 5,800,847. It is entirely of Scandinavian stock, with the exception of 25,290 Finns, 7138 Lapps and a few thousand others. The movement of population in 1917 was as follows: Births, 120,461; deaths, 77,157; marriages, 35,589. The immigrants in that year numbered 5811; emigrants 6440, of whom 2462 went to the United States. The chief towns, with their population at the beginning of 1919, were: Stockholm, 413,163; Göteborg, 196,994; Malmö, 112,521; Norrköping, 58,154.

EDUCATION. Public elementary instruction is free and compulsory; children not attending public schools must present evidence of private instruction. In 1917 the elementary schools numbered 16,485, with 23,014 teachers and 706,066 pupils. There were, besides, 77 public secondary schools with 25,669 pupils; 15 normal schools,

and various special and technical schools. There are two universities, one at Upsala with 2374 students in the autumn of 1917, and the other at Lund with 1405. There are also medical, philosophical and law faculties at Stockholm and Göteborg.

AGRICULTURE. The number of farms under cultivation in 1917 was 447,695. The acreage in hectares, and the produce in tons, for the principal crops in 1918 is indicated in the following table:

Crop	Acreage (hectares) 1918	Produce (tons) 1918
Wheat	154,155	245,019
Rye	383,696	502,779
Barley	185,263	254,080
Oats	732,791	840,135
Mixed Corn	264,719	380,080
Leguminous crops	42,278	59,909
Potatoes	169,488	1,935,840
Roots	120,633	3,686,252
Hay	1,189,947	2,123,314

The following items in regard to Sweden's agriculture during the year were supplied by the United States Bureau of Foreign and Domestic Commerce. The total value of the 1919 harvest was estimated at 2,500,000,000 crowns. The 1918 harvest was valued at 2,330,000,000 crowns. The Central Statistical Bureau of the government has announced that the year's potato crop totaled 2,197,710 tons. Kristianstad and Malmöhus Counties were the heaviest producers, with 318,787 and 196,201 tons, respectively. The government's agricultural commission asked an appropriation of 3,460,000 crowns, to be used in 1921 for draining extensive areas, chiefly in Norrland and in Dalarna.

INDUSTRIES. The chief industry of Sweden has always been mining, and it was the largest producer of iron in Europe until the industry was revolutionized by the introduction of coal. The iron ore produced in 1917 amounted to 6,217,172 tons. Silver, lead, copper, zinc, manganese, sulphur, pyrites, and gold also are produced. The number of persons engaged in mining in 1917 was 49,455. Other important industries are lumbering and woodworking. The following notes on conditions of Swedish industry during the year were supplied by the United States Bureau of Foreign and Domestic Commerce: The prospects for the wood pulp, paper, and textile industries were reported to be improving. The glass industry also showed signs of increased activity, new orders having been received from England. With regard to the peat industry, however, conditions were much more unfavorable. This industry is of great importance because of the large increase in the domestic consumption of fuel which has taken place of late years in Sweden. The percentage of employment in the shoe industry was good, but might have been better if one of the larger factories, which stopped work some time ago on account of the too small market for its products, had not later run into difficulties and therefore been unable to resume production when conditions improved. The Swedish iron industry during both the first and second quarters of 1919 operated under very depressing conditions. Some of the most important reasons for this were the caution and hesitancy of the market on account of the uncertain industrial conditions, the valuta difficulties, overproduction in the

large countries, and finally the government sales on the British market of the stocks belonging to the state which had accumulated during the war. The export of pig iron during the second quarter of 1919 was only 23,100 tons, against 54,900 tons during the same period in 1918; and the aggregate iron export for these two corresponding periods amounted to 57,900 and 109,400 tons, respectively. At the same time the export of iron ore decreased to 635,000 tons, a decline of about 50 per cent.

COMMERCE. The leading exports and imports for 1916 were as follows:

	Kronor	Kronor
Textile manufactures....	83,282,114	21,993,065
Corn and flour.....	58,504,017	5,657,010
Colonial wares.....	73,426,249	10,658,270
Raw textile material and yarn.....	87,757,088	4,562,931
Minerals, of imports mostly coal.....	304,939,850	101,262,824
Metal goods, machinery, etc.....	103,817,465	257,087,133
Live animals and animal food.....	38,541,281	184,686,763
Hair, hides and other animal products.....	60,040,240	26,474,883
Metals, raw and partly wrought.....	94,654,361	170,752,234
Timber, wrought and unwrought.....	13,970,950	328,954,262
Wood pulp, paper and paper manufactures ..	9,192,068	285,248,073
Other articles.....	211,440,894	159,044,458
Total.....	1,138,566,577 (£62,745,988)	1,556,376,906 (£85,703,574)

Official figures just made public show that the import and export trade of Sweden in 1917 amounted to \$564,992,240, as compared with \$722,243,920 in 1916, a loss of \$157,251,680. The trade by countries was:

Country	1916	1917
Imports from—		
Germany.....	\$112,605,560	\$ 77,245,640
Great Britain.....	44,064,560	17,441,440
United States.....	57,335,920	25,760,160
Denmark.....	21,330,120	30,396,560
Norway.....	16,385,520	13,847,560
Finland.....	2,430,760	5,368,040
Switzerland.....	3,360,720	6,480,240
Netherlands.....	5,804,880	6,190,800
France.....	6,314,080	4,207,600
Russia in Europe.....	2,816,680	5,220,640
Austria-Hungary.....	1,238,160	2,532,600
Other countries.....	31,447,120	8,616,200
Total.....	\$305,134,080	\$203,307,480

The trade with the United States declined from \$77,540,440 to \$39,275,400 during the period. Very noticeable are the increased trade balances with the neutral countries—Denmark, Norway, Holland, and Switzerland.

The Swedish government has recently published an interesting series of statistics covering the exchange of products between the three Scandinavian countries during the years 1914 to 1918. The striking fact shown by the statistics was that Denmark supplied Sweden with large amounts of food products during the critical years 1917 and 1918. In 1917 Swedish imports of butter from Denmark amounted to 7142 tons, the total butter imports into Sweden for 1917 being 7150 tons. In the same year imports of cheese and pork from Denmark were 547 and 6345 tons, respectively, the total Danish production of these articles being 548 and 6624 tons, respectively. Exports from Norway to the

other two countries did not begin in earnest until the end of 1918. In 1918 Norway exported to Sweden 54,597 tons of salt herring, as well as considerable quantities of copper ore and sulphur, and 18,000 tons of saltpeter.

At the close of the year there were clear indications that the Germans were recovering the control of the Swedish market for tools. While the American machines enjoyed a better reputation than the German, and could generally be sold at a higher price, the difference in prices was so wide, on account of the cheaper German labor, that there was no market for them. At the close of the year tools were being purchased at a very low price from German sources. Toward the end of the year the new free harbor of Stockholm, which was begun Aug. 6, 1917, was opened, and by the close of the year two large new quays were in use.

SHIPPING. The merchant marine engaged in both the home and foreign trade on Jan. 1, 1919, numbered 2684 vessels with a tonnage of 1,049,456. The vessels entered from foreign countries in 1916 were 34,303 with a tonnage of 13,811,688; cleared for foreign countries 68,884 with a tonnage of 27,721,578. The number of ships and boats which passed through the canals of Sweden in 1916 was 145,104.

RAILWAYS. Late in 1919 the railway line connecting the Swedish and Finnish railway systems at Haparanda and Tornea was opened, and served to obviate the transshipment of freight by sea across the Gulf of Bothnia, which had been the prevailing practice. The interconnection of the Finnish and Swedish railway systems had been planned ever since the Swedish northern trunk line had been extended to the Tornea Valley, some time before the war. The importance of the junction of the two lines was di-

Country	1916	1917
Exports to—		
Germany.....	\$117,260,720	\$ 94,349,400
Great Britain.....	85,773,400	57,920,160
United States.....	20,204,520	13,515,240
Denmark.....	25,149,120	30,225,040
Norway.....	30,921,840	43,606,280
Finland.....	16,567,760	17,784,480
Switzerland.....	978,200	2,286,040
Netherlands.....	16,433,760	21,343,520
France.....	25,888,800	17,095,720
Russia in Europe.....	36,466,760	34,191,440
Austria-Hungary.....	11,684,800	13,617,080
Other countries.....	29,780,160	15,745,000
Total.....	\$417,109,840	\$361,679,400

minished by the fact that the Swedish and Finnish gauges were different, so that goods and passengers could not be forwarded from Sweden to Finland by through trains. The electrification of Swedish railways was under active discussion during the year, the Railway Council considering the electrification of the Stockholm-Gothenburg line, and arranging that the proposal be laid before the Riksdag. The grant required was estimated at about 60,000,000 kronen, not allowing for locomotives. It was planned that this amount should be spread over three years.

The Railway Council also proposed that the electrification of the Gellivara-Svartön railway, previously decided upon, should be pushed forward more rapidly.

FINANCE. Budget estimates for 1919 balanced at 621,693,800 kronor.

The following tables showing the budget esti-

mates for 1919 are taken from the *Statesman's Year Book*:

REVENUE		Kronor
State revenues		
Taxes:		
Capitation tax	850,000	
Taxes on incomes and property, etc. . .	199,350,000	
Succession tax	8,500,000	
Other stamp duties	32,400,000	
Tax on war profits	80,800,000	
Customs	70,000,000	
Excise on spirits, malt, sugar and tobacco	45,400,000	
Miscellaneous	9,802,640	
Net receipts from productive funds of the State		
Business of the State		
Railways		
Posts and Telegraphs	15,784,000	
Waterfall works	6,500,000	
Domains	25,500,000	
Interest shares in the Luossavaara-Kiirunavaara Co., Ltd.	1,450,000	
Interest on shares in the Swedish Tobacco Monopoly Co., Ltd.	4,500,000	
Interest on outstanding loans	4,902,500	
Fund from intoxicating liquor revenue. .	300,000	
Of the profit of the National Bank		
Capital assets taken into use	13,012,300	
Loans	102,642,360	
Total revenue	621,693,800	

A supplementary budget added for external expenses 381,887,900 kronor.

EXPENDITURE			
	Ordinary expenses Kronor	Extraor- dinary expenses Kronor	Total Kronor
Actual Expenses:			
Royal Household	1,345,000		1,345,000
Justice	7,442,940	1,440,460	8,883,400
Foreign affairs	2,322,550	232,850	2,555,400
Army	65,240,888	37,651,612	102,892,000
Navy	27,544,655	15,410,345	42,955,000
Interior	28,105,700	30,203,400	58,309,100
Education and Ecclesiastical af- fairs	26,015,222	8,201,578	34,216,800
Finance	64,762,002	5,488,098	70,250,100
Agriculture	11,174,200	35,704,900	46,879,100
Pensions	11,256,551	3,661,043	14,917,594
Expenses for the Diet, etc.			2,691,000
Interest on the na- tional debt			63,401,000
Special expenditure for defense			5,270,446
Supplementary pay for the time of war			57,000,000
Unexpected ex- penses			500,000
To be paid with			
	Loans Kronor	Other Revenues Kronor	
Improvement of State Property and reduction of debt:			
Business of the State	80,730,360	8,231,300	88,961,660
Loans to private railways	19,830,000		19,830,000
Amortization of the National debt		5,536,200	5,536,200
Fund from intoxi- cating liquor revenue		300,000	300,000
Total expenditure			621,693,800

GOVERNMENT. The executive power is in the hands of the king who acts with the advice of the council of state; legislative power is vested in a Diet of two chambers, both elected by the people. The lower House was distributed among

political groups at the last election preceding 1919, namely in 1917, as follows: Conservatives, 71; Socialists, 97; Liberals, 62. The ministry in 1919 comprised as its principal members the following: Prime minister, Nils Eden; Foreign Affairs, J. Heliner; Navy, Baron E. K. Palmstierna; War, E. A. Nilson; Finance, F. W. Thorsson; Agriculture, Alfred Peterson.

HISTORY

Sweden did not escape the disturbances prevalent throughout the world after the war, and in the first part of the year was endangered by Bolshevism which threatened to spread throughout the country, and by unrest of the working classes. In respect to foreign affairs the question of the Aland Islands continued to occupy the politicians. On May 26th the Swedish government requested of the Peace Conference that the question whether the islands should be assigned to Sweden or to Finland be left to the decision of the islanders themselves in a plebiscite. At this time an important measure was passed by the Swedish parliament, marking a climax of the years of effort to secure woman suffrage. Parliament bestowed full suffrage upon women on May 26th. Women already enjoyed municipal suffrage, which had been extended to them in 1909. A congress of Independent Socialists at Stockholm in June voted by 186 to 22, to take part in the Third International at Moscow and declared in favor of Bolshevik principles. In May the Diet passed a measure for a temporary excise duty on spirits which was expected to yield 20,000,000 crowns. This was a reverse to the element that favored total prohibition, for it involved an increase in the ration of alcohol. Before the war, control was established in Sweden by the "Bratt system," which entitled every one to whom a card was issued to a quantity amounting to 12 litres a quarter. During the war this quantity was reduced to two litres a quarter. The effect of this arrangement was reported to be an extraordinary increase of drunkenness, as the result of illicit consumption and illicit distilling; and it was said that both popular and scientific opinion were agreed that there should be set free a reasonable quantity of good spirits for sale. The passing of the above measure would, it was thought, lead to a return to the former more liberal ration. See EXPOSITIONS; STRIKES AND LOCKOUTS.

SWEDENBORGIANS. See NEW JERUSALEM, CHURCH OF.

SWEDISH LITERATURE. See SCANDINAVIAN LITERATURE.

SWIFT, Rear-Admiral WILLIAM. United States navy, died at Newport, R. I., June 30. He was born at Windham, Conn., March 17, 1848, and graduated at the United States Naval Academy in 1867. He passed through the successive grades rising to the rank of captain in 1902, and rear-admiral in 1908. His services included ordnance duty at the Washington and Boston navy yards 1897-1900, 1907-09. He was commanding officer successively of the vessels *Prairie*, *Concord*, and *Yorktown*; retired in 1910.

SWIMMING. Swimming attained the heights in popularity during 1919. Hundreds of tournaments were held throughout the United States and never before were the number of en-

tries so large and the interest shown by the public so great. Norman Ross of the Illinois Athletic Club and Miss Ethelda Bleibtrey of Brooklyn, N. Y., were the outstanding stars of the year, both contributing new records of which a total of 13 were made, 10 by women swimmers.

The greatest achievement of the American mermaids was their defeat of Miss Fanny Durack and Miss Wylie of Australia who visited the United States. Miss Bleibtrey triumphed over the two Australians in the 440-yard national championship held at the Manhattan Beach Lagoon, New York City, and at the same time established a new record for the distance of 6 minutes 30 $\frac{1}{2}$ seconds. Miss Charlotte Boyle, also of Brooklyn, finished second in this event, Miss Durack and Miss Wylie having to be content with third and fourth places.

Miss Boyle retained several of her championship titles during the year and also set two new American records, one of these being 4 minutes 23 seconds for 300 yards, and the other 64 feet in the plunge for distance. Miss Bleibtrey, Miss Boyle, Miss Alice Lord, and Miss Leslie Bunyan established a new American relay record at 440 yards of 4 minutes 59 seconds.

Of the three new American records made by men swimmers two went to the credit of Norman Ross and one to that of Fred Schwedt of the Detroit Y.M.C.A. Ross scored both his successes the same night in the Los Angeles, Cal., Athletic Club pool where he covered 440 yards in 5 minutes 14 $\frac{1}{2}$ seconds and 500 yards in 5 minutes 58 $\frac{1}{2}$ seconds. Schwedt set the new mark of 80 feet for the plunge for distance in the Pittsburgh A.A. natatorium. Ross also competed in the Inter-Allied championships in France and was victorious in all five competitions, his closest call coming in the long distance swim in the Seine River where he won by only a few yards from Bacigalupo of Italy.

In the senior national championships, outdoors, William L. Wallen of the Illinois A.C. retained his titles at the half-mile and the mile while E. T. Bolden of the Great Lakes Naval Training Station won the 10-mile championship over the Rivington, N. J. course. Yale won the intercollegiate championship.

SWINE. See LIVE STOCK.

SWITZERLAND. A federal republic of Central Europe including within its boundaries the highest parts of the Alps as well as the Jura mountains; divided into 25 cantons and demi-cantons. Capital, Berne.

AREA AND POPULATION. The total area is 15,976 square miles; population at the census of Dec. 31, 1910, 3,741,971; estimated July 1, 1916, 3,937,000. The majority of the inhabitants in 19 out of the 25 divisions spoke German. The majority in five, namely Fribourg, Geneva, Neuchatel, Valais and Vaud spoke French and the majority in one canton, namely Ticino, spoke Italian. Emigration in 1918 was only 304, as compared with 3869 in 1914. The estimated population of towns over 100,000 on Jan. 1, 1918, was as follows: Zürich, 213,900; Basel, 137,100; Geneva, 139,500; Berne, 105,000.

EDUCATION AND RELIGION. No later figures for elementary education are available than those given in the preceding YEAR BOOK. There are seven universities situated respectively at Basel, Zürich, Berne, Geneva, Fribourg, Lausanne and Neuchatel. The largest of these is that at Zürich, which in 1917 had a total attendance of

4309. The Protestants, according to the census of Dec. 1, 1910, numbered 2,107,814, and the Roman Catholics 1,583,538.

PRODUCTION AND COMMERCE. No later figures are available for production than those given in the preceding YEAR BOOK. The country is in the main agricultural, but has important manufactures. The total grain area in 1918 was placed at 412,936 acres. The forest area of Switzerland is placed at 3290 square miles, and is mainly owned by the cantons and municipalities. Salt mining is an important industry, the output in 1917 being 763,306 quintals. The following information in regard to the trade of Switzerland was supplied by the United States Bureau of Foreign and Domestic Commerce:

In 1913 the principal exports to the United States were manufactured goods and food products, with a small percentage of raw materials. During 1917 and 1918 manufactured goods continued to be the principal export to the United States, while the shipment of food products decreased very markedly. From the beginning of the war the value of imports from the United States rapidly increased, reaching the maximum in 1916 of 565,000,000 francs (\$109,045,000) from what may be considered a normal level, that of 1913, of 118,000,000 francs (\$22,774,000).

While wheat and other cereals were the principal factors in this increase of imports, a good share of the advance was due to the high price of the cotton imported, and also to the importation of an unusual quantity of chemicals and manufactured articles. Imports from the United States to Switzerland were artificially curtailed in 1918 because of the shipping situation and through the application of a number of restrictive war measures. The serious effect of the shipping situation and the restrictive war measures on Swiss imports from the United States can be most clearly noted in the matter of wheat imports. Before the war Switzerland raised about one-eighth of the wheat necessary to cover the needs of the country, and in 1913 imported 529,200 metric tons of wheat, more than one-third of which came from Russia. The Swiss imports of wheat in 1917 amounted to 261,700 metric tons, 249,700 tons of which came from the United States, and in 1918 to only 57,700 metric tons, of which the United States supplied 57,100 metric tons, the remainder coming from Argentina and Canada. As the wheat production of Switzerland had, during the years of the war, only increased sufficiently to supply one-fifth of the country's needs, the result of this curtailment of imports was a shortage which would have been avoided at any price, had it been a question of price.

Between the date of the signing of the armistice and the last quarter of 1919, Swiss-American trade has gradually become more normal. Foodstuffs and raw materials, the exportation of which had been subject to so many natural and artificial restrictions in 1918 have been coming forward in increased quantities, particularly after the first quarter of the year. The rate of exchange between Switzerland and the United States shifted from 4.82 francs per dollar Dec. 31, 1918, and 4.95 francs per dollar Apr. 30, 1919, to approximately par (5.182 = 1 dollar) at the end of June, 1919, and from that point to an average of 5.62 francs in the selling rate for dollars during the quarter July-September, 1919. This exchange situation down to October,

1919, was practically unchanged, and the premium of more or less 8 per cent on the dollar has greatly stimulated exportation to the United States, particularly of embroideries, watches, silks, artificial silks, etc., while the low level of foreign exchanges in relation to the Swiss franc makes purchasing of such goods as are obtainable in markets other than those of the United States specially advantageous to the Swiss importer.

The following recent quotation of the value of foreign money in Swiss exchange is indicative of the position maintained by the franc during the past few months, viz.:

Oct. 20, 1919	Buying rate	Selling rate	Par value
New York	560.00	564.50	518.2800
Paris	65.00	65.35	100.0000
London	23.48	23.50	25.2215
Italy	55.00	55.25	100.0000
Germany	19.80	20.10	123.4570
Austria	4.90	5.20	105.0100
Holland	213.50	214.50	208.3193
Sweden	136.00	137.00	138.8900
Spain	107.00	108.00	100.0000

For the years prior to 1913 the balance of trade between Switzerland and the United States averaged somewhat over \$10,000,000 in favor of Switzerland. The balance of trade in favor of Switzerland in 1913 amounted to 18,534,000 francs (\$3,579,062) and in 1914 to 14,115,000 francs (\$2,724,195). For the four succeeding years the balance of trade was in favor of the United States to the following amounts: 1915, 217,273,000 francs (\$41,933,689); 1916, 432,129,000 francs (\$83,400,897); 1917, 339,012,000 francs (\$65,429,316); and 1918, 254,456,000 francs (\$49,110,018).

In relation to Swiss foreign trade in general, the United States prior to the war held fourth place as a purchaser of Swiss exports, and fifth place as a source of supply for Swiss imports, as is illustrated in the following table of percentages:

Country	1900 Per- centage	1910 Per- centage	1913 Per- centage	1917 Per- centage
Exports to—				
Germany	24.11	22.59	22.21	30.07
Great Britain...	20.99	16.75	17.16	15.56
France	13.15	10.87	10.26	19.89
United States...	11.46	12.04	9.91	5.16
Italy	5.28	7.16	6.48	5.58
Imports from—				
Germany	31.53	32.42	32.87	20.07
France	18.66	19.86	18.13	12.70
Italy	14.58	11.64	10.79	15.35
Great Britain...	5.61	6.46	5.87	11.19
United States...	5.14	3.94	6.14	19.08

Germany under normal conditions has always been the principal customer and the chief source of supply for Switzerland. The present low valuation of the mark in Swiss exchange has given rise to certain commercial inquietude, particularly among Swiss manufacturers, and it is feared by these manufacturers that with the mark so far below par the German manufacturers will be able to flood the Swiss market with manufactured goods at prices equivalent to or below the cost of production to the Swiss manufacturer. On the other hand, the population in general, and all organizations interested in seeing the high cost of living in Switzerland

modified, are interested in having any new source of supply which will furnish them with goods at a reduced price, provided, however, that the influx of foreign goods does not produce industrial stagnation in Switzerland and deprive a large proportion of the population of employment. In 1910, 42.74 per cent of the population of Switzerland was occupied in industrial pursuits, and, as that proportion is perhaps now over 50 per cent, industrial stagnation would be a very serious matter for the country and might lead to very radical political developments. There are also a number of people and organizations which insist that the government adjust this matter of exchange, without apparently taking into consideration that it is not within the power of the Swiss government to revalidate the mark.

There appears to be real economic danger for Switzerland in this situation, and it is possible that some steps to avoid it will be taken in the near future, though in what manner is not yet known.

Germany has been Switzerland's main source of supply for coal, iron, and steel, all of which are now being purchased from the United States. If there is any restriction placed by Switzerland on the importation of goods from Germany, it will undoubtedly not affect these articles; but, as under the terms of the Peace Treaty Germany will be deprived of much of its surplus of these products, those imports should be drawn largely from the United States for some years to come. The principal competitor of the United States in the supplying of coal, metals, and also cotton to Switzerland will be Great Britain, which geographically has a somewhat better position for handling Swiss trade than the United States, although not having available as native production so great a quantity of any of those commodities.

To assist British trade in general with Switzerland a branch of the Lloyd's Bank has recently been established in Zürich. British exports to Switzerland are at present also facilitated by the depreciation of the pound sterling. During the past six months British wares of every description, which had been short stocked in Switzerland throughout the war, have appeared in the Swiss market.

American goods are handicapped in this international competition by two temporary and one permanent factor. The first temporary factor is the premium on the dollar, approximating 8 per cent, which means a serious increase in price to the Swiss importer on either raw materials or manufactured goods which have to meet the competition of goods originating in other markets. The second temporary factor is the rapid and numerous changes in market price of goods in the United States.

A number of instances have been cited where it had been impossible to receive and accept quotations before a new advance in price had been made and a new quotation forwarded for acceptance. The permanent factor mentioned is the geographical position of the United States in relation to Switzerland, which entails greater delay in receiving goods and heavier freight rates than would be chargeable on commodities coming from adjacent or neighboring countries. To offset this permanent factor the United States will need good commercial organization, the best of banking facilities, and available space on

steamers for material and goods consigned to Switzerland.

It does not appear to be possible to forecast what types or kinds of American manufactured products could be marketed in Switzerland. In general, it can be said that a market exists for practically all American manufactured products which can be competitively sold in the British Isles or any European country, with the exception of mining machinery and parts, machinery, gear, etc., for ocean-going ships. The competition to be met will be substantially the same as that which will be met in the countries mentioned, and the Swiss import tariff is not a commercial barrier against imports.

The principal articles of import are the following, which are listed in the order of their importance in 1913: Wheat, coal, raw silk, orange silk, etc., precious metals and specie, raw cotton, cereals other than wheat, iron and steel, wine, machinery, sugar, leather, worsted goods, cotton goods, copper, raw wool, cocoa, cotton yarn, coffee, tobacco, petroleum, oils, and rice.

The principal articles of export in the same year were: Embroideries, watches, silk goods, machinery, chocolate, condensed milk, silk ribbons, cotton goods, chappe (silk), aniline colors, straw goods, aluminum, cattle, wrought iron, calcium, and timber.

The principal cities of Switzerland, with their population according to the 1910 census, are:

City	Population	City	Population
Zurich	190,733	Winterthur	46,384
Basle	132,276	Lucerne	39,339
Geneva	132,153	La Chaux-de-Fonds	37,751
Berne	85,651	Neuchatel	23,741
St. Gall	75,482	Bienne	23,679
Lausanne	64,446	Fribourg	20,293

The chief industrial centres of Switzerland are:

Arbon.—Textile machinery, motor cars.

Baden.—Machinery (electrical).

Basle.—Chemical industry, machinery, and silk ribbons.

Berne and Bienne.—Watchmaking, dairying, cheese.

Cham.—Condensed milk.

Geneva.—Jewelry, watchmaking, motor cars.

Chaux-de-Fonds.—Watchmaking, chocolate, and motor cars.

Neuchatel.—Watchmaking, chocolate, and motor cars.

Lausanne.—Chocolate.

Vevey.—Chocolate.

St. Gall.—Embroidery.

Soleure.—Shoes, leather.

Winterthur.—Machinery.

Zürich.—Machinery, silk weaving and bleaching, straw goods.

FINANCE. The following table showing the budget estimates for 1919 was taken from the *Statesman's Year Book*:

Source of Revenue	Francs
Capital invested	16,833,020
General Administration	129,900
Departments—	
Political	47,500
Interior	48,000
Justice and Police	1,222,500
Military	1,266,671
Finance and Customs	69,014,081
Commerce, Industry and Agriculture	6,328,400
Posts and Railways	129,051,510
Miscellaneous	3,858,418
Total	227,800,000

Branch of Expenditure	Francs
Debt, Total Charge	66,645,171
General Administration	2,143,363
Departments—	
Political	1,834,375
Interior	15,076,407
Justice and Police	2,792,190
Military	59,504,245
Finance and Customs	16,150,780
Commerce, Industry and Agriculture	22,361,599
Posts and Railways	139,231,893
Miscellaneous	59,977
Total	320,800,000

GOVERNMENT. The executive power is vested in a president and a vice-president, who are elected by the Federal Assembly, but are not eligible for reelection until after the expiration of a year; and in a Federal Council which consists of seven members elected for three years by the Federal Assembly. The legislative power is in the Federal Assembly consisting of two chambers, namely the State Council and National Council. The former has 44 members chosen by the cantons; the latter 189 representatives chosen by direct election. President for 1919, Gustav Ador. For changes see *History* below.

RAILWAYS. Swiss railway electrification made some progress in 1919, and at the end of the year the Davos and the Filisur line was ready for passenger traffic. It was hoped to have finished the electrification of the line between Davos and Klosters sometime in 1920, and in 1921 the sections between Klosters and Landquart and between Reichenau and Disentis.

Increased freight and passenger rates were required in Switzerland, as elsewhere in Europe, and in the first six months of this year the Swiss State Railways brought in 35½ million francs from the increased tariffs. The average price of coal in 1918 was fcs. 153 (\$30) per ton as against fcs. 27 (\$5.40) before the war. For the year 1920 the expenditure upon maintenance and electrification was estimated at 125,000,000 francs. The eight-hour working day increased the expenditure by several million francs, and it was considered doubtful whether the goods traffic would reach pre-war figures. The estimates for 1920 were as follows: Receipts, 328,000,000 francs; expenditure, 288,000,000 francs. The net receipts therefor were expected to be 40,000,000 francs, which would not suffice to pay interest on debentures, and it was difficult to see how this deficit will be covered.

In addition to general schemes for electrification the scarcity of coal led to the introduction of battery-driven cars for switching at stations of medium size, and for the transport of freight. These cars exerted a tractive effort of 1000 kg. at the wheel rims at a speed of 12 km. per hour, corresponding to 44 horse power.

II. HISTORY

The economic condition of Switzerland was reported in January to be worse than it had been during the war.

THE NEW PRESIDENT. In December M. Motta was elected president to succeed M. Ador, who had been chosen in the preceding elections, as noted in the 1918 YEAR BOOK. M. Motta had already held the office of president in 1915. Like M. Ador he had shown sympathy for the Allies, especially for Belgium after the violation of her neutrality, when he officially expressed his sympathies to the Belgian Minister.

He was a strong partisan of the League of Nations. As Federal Councilor he was the first to affirm publicly that Switzerland must enter the League, and in the Federal Council he represented the Catholic party and the Canton of Tessin.

ATTITUDE TOWARD PEACE. Switzerland favored the League of Nations on condition that she should maintain her neutrality. She could not bind herself to take part in military action under a League of Nations, but economic coercion was not excluded.

PEACE CONFERENCE. The International Council of Peace was held at Berne at the beginning of September and gave its attention among other things to the attitude of the German pacifists during the war, and to the responsibility for the war. It expressed its approval of the resolutions passed by the National German Congress, placing the sole responsibility of the war in 1914 upon the German and Austrian governments. It paid a tribute to the German and Austrian pacifists who had been pursued by their governments on account of their policy, and it declared that they should endeavor to bring their fellow countrymen to a consciousness of the legitimate grievances against their governments in regard to the conduct of the war and the violation of the laws of nations. A resolution was passed which declared that the conscience of humanity reproved all attempts on the lives, independence, well-being, and progress of the people in the course of the war; branded as shameful the executions, torpedoings, the deportation of civil populations, the wilful and systematic destruction of private houses, cities and villages, mines, shops, fruit trees, and in short the entire policy of destroying the future wealth of whole regions; demanded that the authors of these crimes be sought out and condemned with impartial justice by an unbiased international court, and expressed the hope that this would be the work of the founders of the League of Nations. It concluded with an expression of approval of the decision taken by the German National Assembly to appoint a commission of inquiry into the responsibilities for the war and for the atrocities committed during its course. It decided to call in the following spring a general meeting of representatives from peace societies in the entire world.

ELECTIONS. The elections to the National Council in the fall gave the Socialists 40 seats out of the 189, a substantial gain, but far below their predictions. The extremists among them, as represented by three candidates characterized as "communists," were defeated. The radicals lost heavily. Another feature of the elections was the accession to power of an agrarian group. In the elections held at the same time to fill vacancies in the Council of State the Socialist candidates were defeated.

SYKES, SIR MARK. British traveler and writer, died in Paris on February 16th. He was born in England in 1879, studied in Belgium and at Cambridge, and then made long journeys in the near East. He was employed in the British embassy in Constantinople from 1905 to 1907, and collected material for a number of books including the *Through Five Turkish Provinces*, and *The Caliph's Last Heritage*. It was said that in his travels he had covered 14,000 miles and that he had made road maps of 5000 miles hitherto unmapped in Asiatic Turkey. In 1911

he was returned to Parliament as a Unionist, and he was reelected by a large majority at the last election of 1918. At the outbreak of the war he raised a battalion in Yorkshire. He was remarkable for his versatility and gift for languages.

SYLVA, ELOI. A celebrated Belgian tenor, died in Berlin, in September. He was born at Geertradsbergen, Belgium, Nov. 29, 1847. After his début at Nantes he was for seven years a member of the Opéra in Paris, and from 1889-1902 he sang at the Royal Opera in Berlin. He made successful tours of Germany, Russia, France, Belgium, and England. During 1886-87 he sang at the Metropolitan Opera House. His voice was of unusual power, and he was a superb actor.

SYRACUSE UNIVERSITY. A non-sectarian co-educational institution founded in 1870 at Syracuse, N. Y. It is conducted under the auspices of the Methodist Episcopal Church. The enrollment for the sessions of 1919-20 was approximately 4800. In 1918 the faculty numbered 336; in 1919 it was 368. The library contains 103,222 volumes. In 1919 a new School of Business Administration was opened. President, James Roscoe Day, D.C.L., LL.D., L.H.D.

SYRIA. That part of Asiatic Turkey lying between the Euphrates River and the Syrian desert on the east and the Mediterranean Sea on the west, and between the Alma Dagh Mountains on the north and Egypt on the south. In general conformation it is a tableland divided into two long, comparatively narrow strips by the Jordan valley and its continuation northward to the sea at Antioch, and southward to the Red Sea. The western strip is traversed from north to south by a mountain system that rises to 10,050 feet in the Lebanon district. The eastern strip is sandy and bare, merging into the Syrian desert. The area is given as about 114,530 square miles, and the population before the war as about 3,500,000. The population, decimated by massacres and starvation incident to the war, is now supposed to be considerably less, but no precise figures are yet obtainable.

Under a Franco-British arrangement made in 1916, Asiatic Turkey was divided into two zones, the one that included Syria to be regulated and controlled by France. The working out of this arrangement, as influenced and modified by the Peace Conference, was in progress throughout 1919, as indicated below.

THE QUESTION OF CONTROL. The French press abounded in accusations and insinuations during the year in regard to the policy of England in Syria. The British diplomats were accused of stealing a march on the French and of making arrangements in the British interest, contrary to the just claims of France. This was based on rumor largely, and there seemed to be no specific authorities for the charges. Toward the end of September an arrangement was reported between Lloyd George and Clemenceau for a provisional solution. According to reports in the press, England was to recall her troops from Syria, beginning November 1st, and French troops were to replace them in the zone that had been assigned to France by the Anglo-French treaty of May, 1916, namely in the Libanus and in Cilicia and at Beirut, Alexandretta, and Diarbekr, but Mosul was to keep its British garrison. The treaty of 1916 provided for an indirect French administration; that is

to say, it was understood that in the cities and territories of Damascus, Aleppo, Homs, and Hama, the French troops were not to replace the English. The English declared that according to the treaty which they had signed at Mecca, Oct. 25, 1915, in order to secure Arab support against the Turks, an independent Arab kingdom was established in the above-mentioned cities, as well as in Mesopotamia as far as Bagdad. According to the French view it was inconsistent of the English to keep Upper Mesopotamia as they had done, without any consideration for this new Arab state, and at the same time require the French to respect the Arab claims in the interior of Syria. Moreover, the treaty of October, 1915, was not known until February, 1919, and the French therefore were not bound by it. On the other hand, the English declared that on Nov. 23, 1915, the French representative had been informed of the new communications with the Arab chief. To this the French replied that while their representative had been informed of communications, he had not been informed as to the nature of them. He did not know anything about the agreement with the Arab chief, and he had even in the course of the conversation rejected the idea of an independent Arab state. The English press, while recognizing the rights of France, emphasized constantly the rights of the populations concerned, and especially of the Arabs. To this the French replied that they were not novices in the matter of treating Orientals; that inasmuch as they had founded and maintained a great empire on the other side of the Mediterranean, and during the four years of war had had no troubles with the natives in North Africa, in contrast to the difficulties which had developed in British possessions, the English might be fully reassured in the matter. They said it was first necessary to come to a frank agreement on the Syrian question, and after that to leave the French to settle with the Arabs who represented only a single element in the population. It was said that the French were not going into Syria for the purpose of oppressing the natives, and it was pointed out that in Algeria the reforms recently introduced by M. Jonnart were sufficient proof of French liberalism. They said that the English were about to establish a protectorate over the whole of Mesopotamia, over Arabia, and perhaps over Palestine, and that they had just assured themselves of a semi-protectorate in Persia; thus, that the British sway was extending over a wide, new domain. Now the French did not object to this, but were, on the contrary, convinced that the English, with their excellent qualities as colonizers, would rise to the task, and in France there was no concern whatever in regard to the wishes or the claims of the inhabitants of Mesopotamia, Arabia, or Persia. Therefore, why should not England have the same confidence in the French as regards the populations of Syria? Two great countries, France and England, united during the four years of war, and joined by the strongest possible ties of friendship, ought to be able to discuss openly and loyally differences between them.

The French high commissioner, General Gouraud, landed at Beirut, November 21st. Rumors without foundation were circulated to the effect that he intended to conquer the country. These were followed by various rumors of French de-

feats, of French injustice to the Moslems, etc. The French had agreed not to proceed into the interior, or to lay hands on the cities of Damascus, Aleppo, Homs, and Hama. The purpose of the expedition was to relieve the British in Cilicia and in all that part of Syria known as the "blue zone." This was accomplished by the end of the year. It was also, in the second place, to aid the natives of the occupied region in the establishment of a regular and effective administration.

FRENCH RAILWAYS IN SYRIA. The object of French companies in obtaining concessions for railways in Syria was to connect the interior with the important ports. Thus Tripoli, Beirut, and Jaffa became the natural outlets for products of the country, at the same time that the Aleppo - Hama - Homs - Baalbek - Ryak - Damascus-Mzerib line, forming, so to say, the backbone of that region, gave it the consciousness of its moral unity.

Damascus has Beirut as an outlet. This line is a masterpiece of construction. It traverses the Lebanon range at an altitude of 1487 meters (4878 feet), descends to 900 meters (2953 feet) in the Bekaa, then crosses the Anti-Lebanon mountains at 1405 meters (4609 feet), to descend again to 699 meters (2293 feet) at Damascus. It has four tunnels, 13 bridges, and 39 kilometers (24 miles) of rack and pinion track. Its only defect is that it is of a narrow gauge from Ryak to Beirut. The building of a standard-gauge line would have required an outlay out of all proportion to traffic.

The line was constructed without a guaranty of the Turkish government, and opened for operation in 1895. In 1913 it attained receipts of 18,000 francs per kilometer. In the beginning the receipts were insignificant, for it was not a question of capturing an existing traffic, but to create it.

The Homs-Tripoli line, intended to serve Homs, Hama, and Aleppo, produced before the war 16,900 francs of receipts per kilometer. This line was demolished by the Germans, who used its material for the construction of the Ras-el-Ain Diarbekr branch of the Bagdad railway.

The Jaffa-Lyda branch of the French railway from Jaffa to Jerusalem, which connected the centre of Judæa with the coast and had been opened in 1892, was likewise destroyed. The first result of German occupation was to cut off the interior of Syria from two of its ports, Tripoli and Jaffa, and to attach it more closely to the centre of the Turkish State by the Constantinople, Aleppo, Damascus, Afouleh, Tul-Karem, Lydda, Bersheba line.

The French enterprises in Syria include also the network of Lebanese tramways, serving the suburbs of Beirut within a radius of 20 kilometers (12.5 miles). These lines are to be extended toward the other ports. A line running along the coast would complete the system of Syrian railways.

The Franco-Syrian network of railways includes the following lines: Aleppo-Ryak, 331 kilometers (205 miles); Beyrouth-Damascus-Mzerib, 249 kilometers (155 miles); Homs-Tripoli, 102 kilometers (63 miles); Jaffa-Jerusalem, 87 kilometers (54 miles); Lebanon tramways, 21 kilometers (13 miles); making a total of 790 kilometers (490 miles).

Whereas the German and Turkish railways had a tendency to draw Syrian activity toward Con-

stantinople, the French lines strive to conserve the fruits of Syrian traffic to the country and contribute in a great measure to give to it the consciousness of unity and independence.

TAHITI. See FRENCH ESTABLISHMENTS IN OCEANIA.

TAILHADE, LAURENT. A French poet and radical agitator, died in France November 3d. He was born at Tarbes, in 1854, and attracted attention during his youth by his anarchistic speeches. To him was attributed the remark in the Chamber of Deputies in 1893, "What matter the victims if the act is beautiful?" In the following year he was one in an anarchist riot in Paris, and in 1901 was condemned for a year in prison for an article in which he had urged the assassination of the Czar, and the President and ministers of the French Republic. He added greatly to his notoriety by figuring in two duels in 1909. As to his literary career, he began as a journalist and in his early writings showed the literary influence of the Parnassians. The best known of his writings are ballads and satirical verse. Among his works are the following: *Le jardin des rêves* (1880); *Au pays du musle* (1891); *A travers les grouins* (1899); *Poèmes aristophanesques* (1904); *Poèmes élogiques* (1907); *Un monde qui finit* (1909); *La forêt* (1910); *Pages choisies* (1912).

TAIWAN. The official name of Formosa, used by both Japanese and Chinese. See FORMOSA.

TARASOVA, NINA. See MUSIC, Artists, Vocalists.

TARDIEU, ANDRÉ. French representative at the Paris Peace Conference. He was well known in the United States as French High Commissioner during the war. He studied at the Ecole Normale, graduated at the head of his class; first entered diplomacy, but later devoted himself to journalism, and became foreign editor of the *Temps*. In the general election just before the war he entered upon a political career, and in August, 1914, he was appointed chief censor, which office he soon left in order to enter the active service in the field. After an attack of pneumonia which incapacitated him for service at the front, he was appointed to his mission in the United States, where he performed his duties with great efficiency and tact, and won the good will of all. He returned to France after the formation of the Clemenceau ministry and he remained in Paris and served as commissioner for matters pertaining to the relations between France and the United States, with the exception of a short interval passed in the United States. On November 7th upon the resignation of Lebrun, Minister of Blockade and of the Invaded Regions Captain Tardieu was appointed to this post. This promotion was of great importance in view of the political situation in France, for it indicated that M. Clemenceau might support his nomination as successor to the prime ministership.

TARIFF. The year 1919 saw no vital issue made of the tariff question among the leading nations of the world, largely because commerce at home absorbed the interests and activities of those concerned almost exclusively. The provision of the Peace Treaty which compels Germany to consider the allied countries on the most-favored nation basis for at least five years promises to replace France and Belgium as competitors in the world markets. It seemed quite pos-

sible that by making special commercial arrangements with neutral or other countries, the invaded allied countries would be unable to repair their destroyed industries for a disastrously long period. The treaty provisions would tend to give them an opportunity for development and repair without making similar obligations in return. In the United States there have been no important revisions of the customs duties as yet. The Tariff Commission whose activities are outlined below, has continued its extensive investigations into various branches of industries affected by the war or by foreign commerce, and is preparing a programme which will be very valuable for any tariff legislation which may be inaugurated in the future.

TARIFF COMMISSION. According to the Revenue Act of Sept. 8, 1916, this commission was created as a permanent organization, to be composed of six commissioners serving for a term of 12 years. The duties of the commission are to investigate all matters relating to the administration and the industrial and fiscal effects of customs laws throughout the world; to investigate tariff problems between this country and abroad; and to place all information at the command of the President and Congress. Unfortunately the entire personnel of the commission were compelled by circumstances to devote much of their time to special war services during the last year. Chairman Taussig severed his connections with the War Industries Board only to be called by the President to Paris as an expert adviser. This made it necessary for him to resign as chairman of the tariff commission and left a vacancy which had not been filled up to the time when the annual report of the commission was issued, Nov. 29, 1919. The other commissioners are Thomas W. Page, vice-chairman; David J. Lewis, William Kent, William S. Culbertson, and Edward P. Costigan. Its secretary is John F. Bethune; its office is at 1322 New York Avenue, Washington, D. C. The commission was also greatly handicapped by the fact that its appropriation was reduced by Congress from \$300,000 to \$200,000. It was necessary for the commission to give up many lines of work which it had planned to prosecute with vigor, and to dispense with the services of a large number of experienced men and women. A greater part of the work that was completed has not been published because of the lack of money to pay for the printing.

The cessation of war activities made it opportune to again bring up to Congress a number of recommendations based largely on investigations made in past years. The Tariff Commission urged in response to a request from the Ways and Means Committee for suggestions of possible revenue legislation, that independently and in advance of other tariff and revenue enactments, especially prior to tariff and internal revenue increases, statutory provision be made whereby duties and taxes shall attach to merchandise previous to the date of the final passage of tariff and internal revenue law. By disregarding this source of revenue which European countries have not neglected the United States has lost a very considerable possible income at every tariff or internal revenue change. Another recommendation made by the commission is in regard to customs administration laws. Many of the present laws on this subject are not only highly antiquated, but also contain much

surplusage, frequent obscurity, and provisions so severe in their practical operation that they have long and continuously led to just complaints that the government is placing unreasonable burdens on commerce. The Tariff Commission has also made a complete and exhaustive report on the subject of free or foreign-trade zones in ports of entry. As a result of this investigation the commission recommended the adoption of permissive legislation for the establishment of foreign-trade zones. The building up and maintenance of an American merchant marine and the facilitating of our foreign commerce justify and demand the elimination of unnecessary hindrances and delays incident to the present system of bonded warehouses and drawback, and the adoption of the foreign-trade zone is an alternative and supplementary device. In response to an official request of the Ways and Means Committee, the commission submitted on Oct. 4, 1919, the results of its investigations on "Dumping and other unfair foreign competition in the United States." The report makes clear that dumping is generally regarded as occurring whenever there is a sale of imported merchandise at less than its prevailing or wholesale price in the country of production. It suggests that some official body, moving along lines sanctioned by Congress in the Federal Trade Commission Act, may be specifically instructed to deal with dumping as a manifestation of unfair foreign competitive methods. In February, 1919, the commission submitted to Congress a comprehensive report on reciprocity and commercial treaties. The report is prefaced by recommendations with regard to the use of tariffs as a means of preventing discriminations to the disadvantage of American citizens and their products in foreign markets. The recommendations emphasize the principle that "the United States should ask no special favors and should grant no special favors" and that "it should exercise its powers and should impose its penalties not for the purpose of securing discriminations in its favor but to prevent discriminations to its disadvantage." The commission recommends the enactment of legislation authorizing the imposition of additional or penalty duties by proclamation of the President on imports from countries not according to the United States the same treatment accorded to other most-favored nations.

During the past few years various reports were in process of preparation on foreign tariffs and commercial treaties. In the discussion rising out of the peace conference and during the war, urgent demands were made upon the commission for this type of information, and in many cases the commission coöperated actively with other branches of the government in providing pertinent and reliable data on commercial treaties and colonial tariffs. Substantial progress has been made toward the preparation of this material for final publication. The subjects thus dealt with include a report on "Colonial Tariff Policies." The first part will review preferential tariffs in Great Britain and the British self-governing dominions, while part two will include a survey of the colonial tariff policies of France, Germany, Italy, Spain, Portugal, the Netherlands, Belgium, Great Britain (Crown colonies), Japan, and the United States. This report will be prefaced by a summary presenting the value of colonial trade, the effect of tariffs, the exist-

ing open-door treaties, and tariff policies and tendencies in the British Empire and dependent colonies. The commission has in course of preparation a digest of the commercial treaties of the world. It will contain a digest not only of the commercial treaties of the United States with other countries but also of commercial treaties, conventions, and tariff agreements between all nations which were in force at the outbreak of the war in 1914, and of others which have been concluded since that date. A report upon the proposed reciprocity agreement of 1911 between the United States and Canada, which is also being prepared at the request of the Committee of Ways and Means, will contain an historical account of the negotiation of the agreement, a detailed analysis of the measure, and a comparison of the rates proposed in 1911 with the then existing tariffs of the two countries and with the tariffs at present in force.

The Tariff Information Catalogue consists of a complete collection and thorough classification of all possible information regarding each article covered in the revenue act of 1913. In addition to a general discussion of each article, its uses, the methods and processes of its manufacture, and the differences of American and foreign methods, the catalogue gives the nature and source of supply, domestic and foreign productions, regulations, costs of manufacturing here and abroad, and other related data. Reports on the following subjects have been completed during the year 1919: -Census of dyes and other coal-tar chemicals; Pyrites and the sulphur industry; The potash industry; The domestic potato product industry; Acids and related materials; Optical glass and chemical glassware; Tungsten-bearing ores; The magnesite industry; Manganese ore; Zinc ore; Graphite; Scientific instruments; The Lumber industry; Costs of production in the sugar industry; Glucose; Industrial alcohol; Confectionery; Cotton yarn; Cotton venetians; Papers and books; The brush industry; and The wool growing industry.

TASMANIA. A state in the Commonwealth of Australia consisting of the island of Tasmania and several small islands. Area, including Macquarie, 26,215 square miles; estimated population, Jan. 1, 1917, 203,177, as compared with 191,211 at the 1911 census. Capital, Hobart. Legislative power is vested in a legislative council and a house of assembly, members of the former being elected for six years and of the latter for three years. Executive power is vested in a governor or administrator appointed by the crown. Governor at the beginning of 1919, Sir F. A. N. Newdegate; Prime Minister, W. H. Lee.

Recently published comparative figures for the mineral output of Tasmania in 1905, 1913, 1917 and 1918 are shown in the table below, from the report of the Secretary of Mines for the calendar year 1918:

<i>Minerals</i>	1905	1913	1917	1918
Gold... fine ounces	73,540	33,400	14,496	10,529
Silver-lead ore... tons	75,270	83,289	9,576	7,241
Blister copper... do	8,610	4,569	5,845	5,559
Copper ore... do	1,151	1,967	771	444
Tin ore... do	3,891	4,010	2,637	2,256
Wolfram... do	32	68	172	155
Osmiridium... ounces	.....	1,262	332	1,607
Zinc... tons	.....	.....	48	3,822
Scheelite... do	.....	.....	69	218
Coal... do	51,993	55,043	63,412	60,163

TAWNEY, JAMES A. Former Congressman, died at Winona, Minn., June 12. He was born in Gettysburg, Pa., Jan. 3, 1855; became a machinist and worked at that trade until 1881; was admitted to the bar in 1882, and afterwards practiced at Winona. After serving in the State Senate he was a member of the United States Congress from 1893 to 1911. President Taft appointed him a member of the International Joint Commission for the settlement of disputes with Canada. He was a Republican in politics.

TAXATION. The so-called War Revenue Act of 1918 was signed by President Wilson on Feb. 24, 1919, immediately upon his return from Europe. The bill, providing for \$6,000,000,000 revenue from taxes during the year 1919, was reported to the House on February 6th, and was passed February 8th, after a six-hour discussion, by a vote of 310 to 11. The 60-dollar provision for ex-service men, and the child-labor section, were criticized but retained, the former being characterized by one member as a "mere pittance." The bill was passed in the Senate on February 13th without a record vote. Total revenue requirements for 1919 were estimated at the beginning of the year to be in the neighborhood of \$18,000,000,000; thus it was planned to raise about one-third by taxes.

Drastic measures to prevent the narcotic drug traffic became effective at once. Among taxes which became effective April 1st were those affecting railroad and steamship tickets, pipe lines, insurance, theatre admissions, and club dues, and a variety of stamp taxes. Levies against the excess of value of so-called semi-luxuries, such as articles of dress, were imposed after May 1st. The soda fountain tax became effective May 1st. (See 1918 YEAR BOOK for further details concerning the bill.)

The act authorized the appointment of an Advisory Tax Board of six members, which should hear appeals from taxpayers to revenue officials, concerning the fairness of assessments, and questions arising out of the auditing of returns. The names of five of these members were announced by Commissioner of Internal Revenue Daniel C. Roper on March 14th, as follows: Dr. T. S. Adams, Chairman, J. E. Sterret, Stuart W. Cramer, L. F. Speer, and Fred T. Field. It was announced that the sixth position would be reserved as a roving commission for experts to be called in from time to time. This board was abolished October 1st, and replaced by a "committee on Review and Appeal."

The luxury tax and the excess profits tax were much criticized. President Wilson urged the repeal of the former in his message to Congress May 20th, citing its failure in other countries, but the attempt at repeal failed. Secretary of the Treasury Glass, in his annual report in December, 1919, cited the objections of the Treasury Department to the excess profits tax, especially as a peace measure, declaring that it discouraged all successful business activity, and was also an important factor in the high cost of living. He proposed to make up the loss which would come from its elimination by increases in the normal income tax and in the lower brackets of the surtax. He also urged such revision of the revenue law as would prevent evasion of Federal taxes by investment in tax-exempt and municipal bonds.

Total tax returns as compiled for the fiscal year ending June 30, 1919, were \$3,840,000,000,

as compared with \$3,695,000,000 for the previous fiscal year. Of this total, \$2,707,000,000 represented total taxes on wealth, including \$2,596,000,000 from income and profits taxes. As the new income and profits taxes are payable in instalments, however, about \$2,000,000,000 of the 1919 tax will not be received until the fiscal year 1920. Allowing for this, the proportion of taxes on wealth really ascribable to the year 1919 amounts to about 81 per cent, as compared with about 79 per cent for the preceding fiscal year.

THE STATES. Economic legislation in North Dakota was comprehensive, revolutionizing the tax and revenue Code. The classification of property Act divided all property into two classes, assessed at 100 per cent and 50 per cent respectively, of actual value. This was accompanied by an Exemption Act, providing for exemption of buildings and improvements upon farm lands. An income law was passed, dividing all incomes into earned and unearned, with rates accordingly. Several other minor measures bearing on taxation were passed.

The provisions of the New York State Income Tax Act which imposed a tax upon the income of a non-resident derived from personal services performed, or business transacted in the State, were held to be contrary to the Federal constitution by the United States District Court for the Southern District of New York. The case went to the United States Supreme Court on appeal by the State of New York, where it was argued December 15th. The decision is awaited as an important one.

The inheritance tax of New Jersey was sustained by the United States Supreme Court, as applied to the estates of non-residents within its jurisdiction.

The classification amendment to the State constitution of Ohio was defeated by the people when submitted to the voters at the November election. This came as a surprise since the provision was approved by the voters in November, 1918, but it was held up by a decision of the court which declared it invalid. The campaign was repeated, with confidence, merely to be defeated this time by the people themselves.

An amendment to the State constitution was passed in Utah providing for the taxing of incomes from mines.

CANADA. Contrary to expectations the business profits tax, outlined in the 1918 YEAR BOOK, remained in force so as to cover accounting periods ending on or before Dec. 31, 1919. Income tax percentages were much more drastic than in 1918, and the burden of the business profits tax was fully as heavy as in the preceding year.

The financial costs of the war for Canada up to March 31, 1919, were estimated to be \$1,327,000,000. For the current year less than \$70,000,000 of surplus revenue over ordinary expenditures is calculated on as an offset to war expense. Thus Canada must depend on large-scale borrowings for a long time to come.

Canadian banks paid approximately \$1,000,000 additional taxes during the fiscal year 1919. Every bank now pays $\frac{1}{4}$ of 1 per cent upon the average amount of notes of the bank in circulation. The right of the provincial governments to tax federally-chartered banks having been established, Nova Scotia and Saskatchewan stepped into the field with several fresh imposts; the tax

of Nova Scotia alone is estimated to amount to \$250,000.

GREAT BRITAIN. Total tax revenues in Great Britain for the fiscal year ending March 30, 1919, were £784,000,000, as compared with £613,000,000 the preceding year, and £514,000,000 for 1917. Those which could be classified as war tax revenues aggregated £621,000,000 in 1919, £450,000,000 in 1918, and £351,000,000 in 1917. The proportion of war expenditures met by war taxes has been computed to be 26 per cent for 1919, 18 per cent for 1918, and 17.5 per cent for 1917.

For the fiscal year ending March 30, 1919, tax receipts were as follows (in millions of pounds): Customs, £103; excise, £59; estate duties, £30; stamps, £12; land tax, £0.6; house duty, £2; income tax, £291; excess profits tax, £285; land value tax, £0.7. The total tax revenues of £784,000,000 comprised 31 per cent of Great Britain's total revenues, the large receipts from income and excess profits taxes contributing 11 per cent each to this figure.

FRANCE. Ordinary revenues in France during the war were greatly reduced since the territory invaded was the richest and best developed in the country. Furthermore, the economic confusion in the country, as well as the general political situation, made it difficult to impose any new taxes. Consequently, for the first three years of the war, tax revenues were actually smaller than before, insufficient even to offset ordinary peace expenditures. The result of the government's apparent timidity in levying taxes early, and its adoption of the loan policy as an alternative, was shown in the subsequent exaggerated rise in prices, the depreciation of the franc, and the very critical financial status of the country following the war.

M. Klotz, retiring Minister of Finance in France, in presenting a budget for 1920, estimated "ordinary expenses" at 18,000,000,000 francs, and "ordinary resources" at 9,500,000,000 francs. The deficit of 8,500,000,000 francs he proposed to make up in part by a tax on business turnovers of 1 per cent generally and 5 to 10 per cent for non-essential commodities; this tax is calculated to raise 4,000,000,000 francs, replacing the luxury tax now in force. Other resources included increased indirect and war taxes amounting to 1,800,000,000 francs, a tax on acquired wealth, of 1,500,000,000 francs, and others. The scheme leaves 222,000,000 francs unprovided for.

REFERENCES. National Tax Association, *Bulletin*; Edwin R. A. Seligman, *The Cost of the War and How it was Met*, *American Economic Review*, December, 1919; C. J. Bullock, *War taxes and our Industrial Situation*; Maurice Peloubet, *Operation of the British excess profits duty law*, *Journal of Accountancy*, January, 1919; War taxation of incomes, excess profits, and luxuries in certain foreign countries, Legislative Reference Division, Library of Congress; B. Pontifex, *The Canadian income war tax act, 1917*; H. J. Davenport, *The War Tax Paradox*, *American Economic Review*, March, 1919.

See also the articles on **BANKS AND BANKING**; **FINANCIAL REVIEW**; **INDUSTRIAL RECONSTRUCTION**; **INSURANCE**; **PRICES**; **TARIFF**; and **WAR FINANCE**; and the articles on the various countries.

TAYLOR, CHARLES FREMONT. Editor, died in Philadelphia, Pa., November 4. He was born

at Attica, Ind., July 3, 1856, and became a doctor of medicine practicing in Indiana from 1880 to 1883. After that he was made the editor of the *Medical World*. He wrote a number of works including *Conclusive Peace*.

TAYLOR, FRANKLIN. An English pianist and teacher, died in London, March 19. He was born at Birmingham, Feb. 5, 1843. From 1883 he was professor of piano at the Royal College of Music. His books on piano technic are valuable. He also contributed numerous articles to *Grove's Dictionary of Music and Musicians*.

TEACHERS' COUNCIL. See **EDUCATION IN THE UNITED STATES**.

TEACHERS. See **EDUCATION**.

TEACHERS, AMERICAN FEDERATION OF. See **EDUCATION**; and **LABOR, AMERICAN FEDERATION OF**.

TELEGRAPHS. See **UNITED STATES**.

TEMPLE UNIVERSITY. A co-educational institution, supported largely by the State, located at Philadelphia, Pa. Productive funds for the year amounted to \$367,477. The enrollment for the summer of 1919 was 307, and in the fall it was 5058, with 326 members in the faculty. The School of Commerce is the largest in the university, the enrollment for the fall being there 2342. There is also a Teachers College, a High School, an Elementary School, and Schools of Theology, Law, Music, Medicine, Dentistry, Pharmacy, and Chiroprody. The library contains 13,093 volumes. In 1919 the balance of the bequest of Charles Kolb was received, namely, \$78,503. Temple was founded in 1884. President, Russell H. Conwell, D.D., LL.D.

TENNESSEE. POPULATION. The population of the State in 1910 was 2,304,629, and on July 1, 1919, it was estimated to be 2,337,879, a gain of 16,000 during the past twelvemonth.

AGRICULTURE. The following table is compiled from a report of the federal Department of Agriculture.

Crop	Year	Acreage	Prod. Bu.	Value
Corn	1919	3,250,000	74,750,000	\$117,358,000
	1918	3,250,000	78,000,000	113,100,000
Oats	1919	400,000	9,200,000	8,556,000
	1918	325,000	8,125,000	7,556,000
Wheat	1919	810,000	7,290,000	16,184,000
	1918	750,000	7,500,000	16,050,000
Tobacco	1919	110,000	a 88,000,000	22,088,000
	1918	77,800	a 62,240,000	13,319,000
Hay	1919	1,280,000	b 1,792,000	48,384,000
	1918	1,240,000	b 1,674,000	40,176,000
Potatoes	1919	48,000	3,120,000	5,366,000
	1918	50,000	3,500,000	5,775,000
Cotton	1919	775,000	c 298,000	49,915,000
	1918	902,000	c 380,000	44,014,000

a Pounds. b Tons. c Bales.

EDUCATION. The school population as of July, 1919, was 810,291, an increase in the year of more than 22,000. Other statistics for 1919 are not available; but in 1918 the enrollment was 604,633, with an average daily attendance of 418,709. There were 11,880 teachers with salaries ranging from \$255 to \$645.

TRANSPORTATION. The total railway mileage of the State in 1919 was 4227.39. The trunk lines have the following mileage: Illinois Central, 142.70; Louisville & Nashville, 951.81; Nashville, Chattanooga, & St. Louis, 902.57; Southern Railway, 891.51; Tennessee Central, 290.76. See **CHILD LABOR**; **WORKMEN'S COMPENSATION**.

FINANCE. The balance in the State Treasury on Dec. 20, 1916, was \$68,164, and on Dec. 19,

1918, it was \$841,682. The gross receipts for this period amounted to \$16,193,659; and the total disbursements for the same period were \$15,420,141. The actual receipts were \$11,467,418. The principal items of expenditure were schools, charitable institutions, soldiers' pensions, maintenance of convicts, interest on the State debt, and administration. The total interest-bearing bonded debt outstanding at the end of the biennium was \$11,481,000.

CHARITIES AND CORRECTIONS. In 1915 the control of the charitable and penal institutions of the State were centralized under the Board of Control. The following table shows the institutions under its supervision, their location, expenditures for the period from December, 1917, to June 30, 1918, and the population on the latter date.

<i>Institution</i>	<i>Location</i>	<i>Expenditure</i>	<i>Population</i>
State Penitentiary	Nashville	\$530,116	1,104
Brushy Mt. Prison	Petros	427,896	631
Training and Agricultural School for Boys	Nashville	206,503	546
Industrial School	Nashville	221,709	707
School for the Blind	Nashville	83,618	207
School for Deaf and Dumb	Knoxville	87,871	240
Eastern Hospital for the Insane	Bearden	198,163	664
Western Hospital for the Insane	Bolivar	263,678	779
Central Hospital for the Insane	Nashville	256,398	781
Vocational Reformatory for Girls	Tullahoma	91,240	....

OFFICERS. Governor, A. H. Roberts; Secretary of State, Ike B. Stevens; Comptroller, Jno. B. Thomason; Treasurer, Porter Dunlap; Auditor, S. P. Anderson; Attorney-General, F. M. Thompson.

JUDICIARY. Supreme Court: Chief Justice, D. L. Lansden; Associate Justices, Grafton Green, Frank P. Hall, Collin P. McKinney, N. L. Bachman.

TENNESSEE, UNIVERSITY OF. A non-sectarian co-educational State institution, founded in 1794. The colleges of liberal arts, engineering, agriculture, and law are located at Knoxville, and in the fall of 1919 had an enrollment of 673 men and 235 women, a total of 908. The colleges of medicine, dentistry, and pharmacy are located at Memphis, and had an enrollment of 131 men. The members of the faculty for the year ending June, 1919, numbered 233. The endowment of the university is \$425,000; the total income for the year ending June 30, 1919, was \$535,857. The library contains 42,243 bound volumes. During the year there were established courses for teacher-training in industrial arts, home economics, and agriculture, under the Federal Smith-Hughes Act. In 1917 the State Legislature authorized a bond issue to be used largely for new buildings, the amount available under this act for permanent improvements being \$900,000 plus interest accumulations. Owing to the war, there was delay in completing the plans for the buildings. The money is being used chiefly on the erection of a main building on the campus at Knoxville, an agricultural laboratory building, an enlargement of the Engineering Building, for buildings for the Experiment Station Farms at Knoxville and Columbia, and for a laboratory at the College of Medicine at Memphis. The most important gifts of 1919, are an

endowment of \$25,000 by Miss Mary Boyce Temple of Knoxville to promote plant and live stock breeding, to be known as the Oliver Perry Temple Foundation; and a gift of about \$30,000 by Mr. W. S. Shields of the Board of Trustees, for the purchase of land for an athletic and drill ground. President, H. A. Morgan, B.S.A., LL.D.

TENNIS. Tennis recovered all its prestige and popularity lost during the war years in 1919. William M. Johnston of San Francisco, who had earned the singles championship of the United States once before in 1915, captured the honors for the second time in 1919 by defeating William T. Tilden, 2d, of Philadelphia in the final round of the tournament held at Forest Hills, L. I. Johnston had been out of the game for almost two years, during which he was first an ensign and then a junior lieutenant in the navy, but he had little difficulty in emerging victorious over younger rivals who had the advantage of practically continuous playing during the war period.

The doubles championship was won by Norman Everard Brookes and Gerald L. Patterson of Australia who defeated William Tilden, 2d., and Vincent Richards of the United States in the challenge round played on the courts of the Longwood Club near Boston, Mass. Both Brookes and Patterson also competed in the singles tourney at Forest Hills, the former bowing to Johnston after a thrilling five-set match and the latter going down to defeat at the hands of Tilden.

Mrs. George W. Wightman regained her national women's title by defeating Miss Marion Zinderstein of Boston in the final round. Miss Zinderstein had previously conquered Mrs. Franklin I. Mallory, the former Miss Molla Bjurstedt and defending champion in the semi-final round. The Norse star, who had been the sensation of the courts for several seasons, was far from her best all through 1919 because of an injury suffered early in the spring.

The Davis Cup matches were resumed during the year, England winning the preliminary ties and sending a team to Australia to play the Antipodeans. These matches were scheduled for January of 1920.

A summary of the principal tournaments held in the United States during 1919 follows:

National Singles Championship, Forest Hills, L. I., final round, William M. Johnston, San Francisco, defeated William T. Tilden, 2d., Philadelphia, 6-4, 6-4, 6-3.

National Doubles Championship, Boston, Mass., final round, Norman E. Brookes and Gerald L. Patterson, Australia, defeated William T. Tilden, 2d., and Vincent Richards, United States, 6-1, 6-3, 3-6, 7-5.

National Clay Court Championship, Chicago, Ill., singles, final round, William M. Johnston defeated William T. Tilden, 2d., 6-0, 6-1, 4-6, 6-2; doubles, final round, Johnston and Samuel Hardy defeated Robert Kinsey and Axel Gravem, 6-3, 6-1, 2-6, 6-3.

Women's National Championship, Philadelphia, singles, final round, Mrs. George W. Wightman defeated Miss Marion Zinderstein 6-1, 6-2; doubles, final round, Miss Marion Zinderstein and Miss Eleanor Goss defeated Mrs. George W. Wightman and Miss Elconora Sears 10-8, 9-7; mixed doubles, final round, Miss Marion Zinderstein and Vincent Richards defeated Miss

Florence A. Ballin and William T. Tilden, 2d., 2-6, 11-9, 6-0.

Junior and Boys' Championships, Forest Hills, junior singles, final round, Vincent Richards defeated A. H. Chapin, jr., 6-2, 7-5; boys' singles, final round, Arnold W. Jones defeated Walter Evans 6-0, 6-3, 6-4; junior doubles, final round, Frank Anderson and Cecil Donaldson defeated Philip Neer and Vincent Richards 6-0, 2-6, 6-4, 6-1; boys' doubles, final round, W. W. Ingraham and A. W. Jones defeated L. Farquhar and Fred Haas 6-3, 6-3, 7-5.

National Indoor Championship, New York City, singles, final round, Vincent Richards defeated William T. Tilden, 2d., 3-6, 6-3, 6-8, 6-1, 6-4; doubles, final round, Richards and Tilden defeated Fred B. Alexander and Dr. William Rosenbaum 6-4, 3-6, 6-2, 2-6, 6-1.

Women's National Indoor Championship, New York City, singles, final round, Mrs. George W. Wightman defeated Miss Marion Zinderstein 2-6, 6-1, 6-4; doubles, final round, Mrs. Wightman and Miss Zinderstein defeated Mrs. A. Humphries and Miss Bessie Holden 6-1, 6-1.

National Girls' Championship, Chestnut Hill, Pa., singles, final round, Miss Katherine Gardner defeated Miss Elizabeth Warren 6-4, 5-7, 6-3.

TERAUCHI, Field Marshal Count SEIKI. Former prime minister of Japan and governor-general of Korea, died at Tokio, November 5. He had been Prime Minister from October, 1916, to September, 1918, when the cabinet resigned to give place to the ministry of Takashi Hara. He was born at Choshu in 1852, being a member of the famous Choshu clan which produced other important statesmen of our time such as Prince Yamagata and Prince Ito; entered the army in 1871; became a major in 1879; and after studying military science in France in 1882 became secretary to the war minister. From this time he rose rapidly from one staff position to another and in 1897 he was made inspector-general of military education. During the war with Russia he was minister of war in the Katsura cabinet, distinguished himself for his thoroughness and organizing power. When the difficult task of organizing the newly annexed territory of Korea arose, he was chosen as the best man to deal with it. Appointed governor-general in 1910, he pursued a policy of firmness and at the same time conciliation and succeeded in thoroughly enforcing the new system. He took over the police powers and stationed Japanese troops in all the provinces. At the same time he carried on valuable work in internal improvement, and in the development of agriculture, and education, which bore permanent witness to his foresight. When he was called to the premiership in 1916 there was a sharp political contest in Japan between the bureaucracy and the democratic element. As he represented the conservative members of the former class, he was bitterly attacked by champions of representative government. He was supported only by a minority, and the measures that he submitted to the house of representatives were defeated. A vote of lack of confidence was averted only by the Emperor's dissolution of the House for which new elections were ordered in April, 1917. Among the grounds of attack upon him was the charge that he represented the military faction and the reactionary element opposed to party government. There were also many stories indicating his hostility to responsible government and to the press.

There was no means, however, of authenticating these reports so far as they were circulated in the western press, and the precise state of affairs during his premiership was not known. As to the war his policy was vigorous and made sure that Japan should do her part. As to Japan's relations to the United States, he had declared his aim to be the promotion of friendly relations. In general the accounts of him indicate the possession of a strong character and great abilities combined with certain prejudices and reactionary opinions, objectionable to the progressive element in his country. A singular circumstance in connection with his death was that it was definitely reported about 10 days before its actual occurrence and the report was believed not only throughout the world but even in quarters in Japan where he was known. The Court bestowed honors on him such as were customary for the dead and letters and telegrams of condolence by the hundreds were received by his wife. He appeared to have fallen into a state of unconsciousness which was mistaken for death and he reported in his diary that he could not remember anything that happened on October 20th and 21st. He afterwards recovered but relapsed.

TERRESTRIAL MAGNETISM. The non-magnetic ship *Carnegie*, of the Carnegie Institution of Washington, on October 10th left Washington for a two years' cruise, tracing through the South Atlantic and Pacific Oceans the various magnetic elements required in the magnetic survey of the world which was being undertaken by the Division of Terrestrial Magnetism of the Carnegie Institution. The *Carnegie* was laid up at Washington during the war, and this, the fifth cruise, was begun to complete the previous observations made in other cruises.

TETRAZZINI, LUISA. See MUSIC, Artists, Vocalists.

TEXAS. POPULATION. The population of the State in 1910 was 3,896,542, and on July 1, 1919, it was estimated to be 4,687,136, a gain during the twelvemonth of 85,000.

AGRICULTURE. The following table is compiled from a report of the federal Department of Agriculture.

Crop	Year	Acreage	Prod. Bu.	Value
Corn	1919	6,760,000	202,800,000	\$239,304,000
	1918	6,500,000	65,000,000	114,400,000
Oats	1919	2,250,000	94,500,000	60,480,000
	1918	1,510,000	22,197,000	20,421,000
Wheat	1919	1,900,000	31,350,000	62,700,000
	1918	900,000	9,000,000	19,350,000
Hay	1919	662,000	a 1,258,000	22,644,000
	1918	581,000	a 581,000	14,467,000
Potatoes	1919	52,000	3,796,000	7,972,000
	1918	60,000	3,300,000	6,600,000
Sw. po'toes	1919	95,000	10,450,000	15,675,000
	1918	87,000	5,046,000	8,830,000
Peanuts	1919	222,000	5,550,000	13,209,000
	1918	488,000	5,368,000	11,058,000
Sorghums	1919	1,798,000	59,334,000	65,267,000
	1918	1,605,000	24,075,000	36,112,000
Cotton	1919	10,346,000	b 2,700,000	472,500,000
	1918	11,283,000	b 2,697,000	380,215,000
Rice	1919	218,000	6,998,000	19,594,000
	1918	245,000	7,840,000	15,445,000

a Tons. b Bales.

TRANSPORTATION. The railway mileage of the State in 1919 was 20,073; of this, 86 miles of new first track were built in the year. See COTTON; ROADS; MINIMUM WAGE.

OFFICERS. Governor, William P. Hobby; Lieutenant-Governor, W. A. Johnson; Secretary of

State, George F. Howard; Treasurer, John W. Baker; Auditor, H. B. Terrell; Attorney-General, C. M. Cureton.

FINANCE. The total receipts for the fiscal year 1917 amounted to \$28,846,583; the disbursements, \$24,525,493. The balance at the beginning of the year was \$1,510,002, and at the end of the year it was \$5,831,092. The total debt of the State was \$5,811,410.

CHARITIES AND CORRECTIONS. The following is a list of the State institutions: Lunatic Asylum, Austin; Deaf and Dumb Asylum, Austin; North Texas Insane Asylum, Terrell; Southwestern Insane Asylum, San Antonio; Orphan Home, Corsicana; Epileptic Colony, Abilene; School for the Blind, Austin; Confederate Home, Austin; Tuberculosis Sanatorium, Carlsbad; Deaf, Dumb and Blind Institute, Austin; Confederate Women's Home, Austin; Juvenile Training School, Gatesville; Girls' Training School, Gainesville; Feeble-minded Institute, Austin; Asylum for Negroes, Rusk.

TEXAS, UNIVERSITY OF. A co-educational State institution, founded in 1881 at Austin, Texas. There is a medical department at Galveston, Texas. The enrollment of the university was enlarged in 1919. Much work was done during the war, for the government, at great expense to the State and the university. President, Robert E. Vinson, LL.D.

TEXTILE MANUFACTURING. In 1919, the resources of the world's textile industry were called upon to meet demands for clothing on an unprecedented scale, due to the shortages produced by the ravages of war and the consequent curtailment of production, ranging from raw materials to finished product. As a necessary corollary of this condition, must be considered the reduced capital and purchasing power of the countries which suffered the most, and the increased purchasing power of the working classes of many of the countries which suffered little, if any, direct effect of the great conflict. Thus in Belgium and France, and in Italy to a less extent, four years of war wrought vast damage to textile plants; but in 1919 every effort was made to reestablish the industry. In central Europe the absence of raw materials was the most serious consideration, and what were once vast industries in Czecho-Slovakia, Poland, Germany, and Austria were unable to secure the necessary cotton and wool to become a large factor either for local or export production.

In textiles, as in other industries the world over, labor questions were serious, and in the Allied countries there was established a working week of 48 hours in place of 56 to 63 hours in vogue before the war. The result of this measure was a decrease in production computed at about 12 per cent for Allied Europe, there being but few instances where greater efficiency was able to offset in proportion the decreased working time. For American textile plants a similar decrease was reported, though due in large measure to strikes. In fact, the Far East was the exception to the limited expansion of the textile industries, and here mills were being built, equipped and operated on an extended scale, though the Japanese were delayed in securing machinery and other needed equipment for which they had placed orders.

There was published during the year, by the War Industries Board at Washington, a series

of pamphlets showing and discussing the course of prices during the war. This matter was of special interest in view of subsequent developments. The pamphlets dealt with the various major industries, and the range of prices for the leading textile products during the five years, as shown, is summarized herewith, though reference should be made to the original documents for a very thorough discussion of causes, effects and general progress.

COTTON AND COTTON GOODS

	1914	1915	1916	1917	1918
Middling upland, N. Y.	.1121	.1015	.1447	.2350	.3178
22.1 carded weaving yarn, 64 x 60 27-in.	.2179	.1981	.2971	.4571	.6635
7.60-yd.	.0304	.0288	.0419	.0663	.1151
176 needle 1/2-hose, doz.	.8063	.7875	.9646	1.40	1.875
5 1/2-pound men's balbrigg's	3.25	3.25	3.4688	1.8646	7.0625

WOOL AND WOOL GOODS

	1914	1915	1916	1917	1918
Ohio fine unwashed	.2502	.3000	.3529	.6446	.7408
2-40s 1/2-blood.	.9854	1.0517	1.4088	2.2230	2.9250
All-wool blankets.	1.0167	1.15	1.375	2.0146	2.6292
Men's 1/2-hose.	1.85	1.8833	1.95	2.9167	4.0792
11-ounce serge suiting.	1.0781	1.1944	1.5131	2.2725	3.3914

SILK AND SILK GOODS

	1914	1915	1916	1917	1918
Sinshui No. 1.	3.68	3.37	5.01	5.66	6.44
Velvet.	.38	.39	.45	.61	.75
Broad silks.	.93	.93	1.12	1.22	1.52
Hosiery.	15.50	15.50	16.18	17.79	22.12
Ribbons.	.08	.03	.04	.04	.06

In the American textile industry a serious feature of the year was the decreased production made possible by the large profits to capital, and the increased wages when working on certain restricted lines, rather than aiming to secure maximum production with a consequent reduction of prices to the general consumer. As a result of limited output in many lines of textiles, goods were allotted by the mills and their agents to anxious customers, and in such allied industries as the clothing trades there was, as a result, high prices and shortage of production, with an especial demand for the better fabrics.

With cotton prices climbing during the year, after an initial recession in February and again in September, reaching a maximum of 40 cents, it was, of course, natural that cotton futures should rise in proportion, and, as a further stimulative there was an increased foreign demand. At the end of the year practically all cotton goods stood considerably in advance of the closing prices of 1918. See COTTON.

In the woollen and worsted industries in the United States, the year saw a transformation from a low-priced to a high-priced market, with an active demand developing at the end of the year. In men's wear there was a decreased production and increased prices, and the same held true in dress goods where, in the second half of the year, prices moved up from 50 to 100 per cent. See WOOL.

The fabrics entering into clothes were more expensive than ever before, not merely on account of the general increase in prices, but in large measure on account of the demand for finer fabrics made up of the finer grades of wools of which the supply was limited, the

shortage in the world's supply of finer wools being estimated at the end of the year at 200,000,000 pounds. William M. Wood, President of the American Woolen Company, late in December summarized the reasons for high prices, from the standpoint of the manufacturer, as follows:

"First, the people demand cloth of fine wools, and will buy no other. They will not take fabrics containing the coarser wools, although much cheaper in price.

"Second, there is a shortage in the world's supply of fine wools amounting to some 200,000,000 pounds.

"Third, our government released to the British government some 66,000,000 pounds, which if it had been held here would have helped us out a little.

"Fourth, and lastly, because our government has so conducted the sale of its own wools as to sustain these tremendously high prices, especially of the finer wools which are in such great demand.

"It is my belief that as long as people continue to demand clothing made of wool which costs anything like \$2.75 a pound, the price of clothing is not going to be much reduced. If our people would consent to wear good, substantial, durable clothes made of the coarser wools, clothing could be purchased at considerably lower prices than those which now prevail."

An interesting record of the wool and worsted industry is shown in the monthly reports of the engagement of machinery, made by the Bureau of the Census. The report showing the status of the industry on Dec. 1, 1919 presents a summary of reports from 924 manufacturers. The data together with percentages for 12 preceding months for comparison, follow:

in 1919 and the dividends distributed at Fall River were the second largest in the history of the local industry. It was stated that the dividends paid during 1919 by the listed cotton manufacturing corporations of the city showed a total of \$4,853,895, being the second largest total in the history of cotton manufacturing there. The largest total was that of 1918, when it was \$6,076,326, exceeding this year's total by \$1,222,431. The total of 1917 was the third largest, being \$633,785 lower than the total of 1919.

The average rate for 1919 was 14.486 per cent. for 1918 18.462 per cent, and for 1917 12.822 per cent. There were 38 corporations listed, all cloth manufacturing concerns except Shawmut Mills, which made yarns for its finished product.

At New Bedford the year 1919 proved to be fully as profitable a period for the fine cotton goods mills as 1918 and the dividend distribution for the year was slightly in excess of that for 1918. The total for all those New Bedford issues on which the dividend rate was publicly announced was \$6,441,175 for 1919 as against \$6,153,340 distributed by the same corporations during 1918. The difference of less than \$390,000 made approximately one-half of one per cent difference in the average yearly rate, which was 13.584 per cent for 1919 as compared with slightly less than 13 per cent for the previous year.

SOUTHERN COTTON MILLS. The year 1919 saw a greater amount of building and enlargement of cotton factories in the cotton-growing States than ever before was experienced since this industry had been located in the south. The established plants had been unusually successful in the earning of dividends in the period after

MACHERY REPORTED AS OF NOV. 1. 1919

	Wider than 50-inch reed space	Looms Under 50-inch reed space	Carpets and rugs	Sets of cards	Combs	Spinning spindles	
						Woolen	Worsted
In operation	51,800	14,879	5,791	6,469	2,288	2,035,781	2,173,339
Idle	8,386	3,506	2,917	756	129	186,089	143,288
Total	60,186	18,385	8,708	7,225	2,412	2,221,870	2,316,627

MACHERY REPORTED AS OF DEC. 1, 1919

Dec. 1, 1919	13.9	19.1	38.5	10.5	5.3	8.4	6.2
Nov. 1, 1919	14.8	18.2	34.5	7.6	5.3	6.7	6.7
Oct. 1, 1919	16.0	20.7	34.1	8.2	5.9	7.7	7.2
Sept. 2, 1919	19.9	22.8	37.2	8.1	5.5	7.9	12.8
Aug. 1, 1919	22.1	24.9	35.5	9.4	6.5	8.9	10.9
July 1, 1919	22.0	26.0	38.6	9.7	7.6	8.9	13.5
June 2, 1919	29.6	26.6	44.5	15.4	12.8	15.2	21.1
May 1, 1919	36.6	32.9	48.9	17.1	22.5	16.8	25.8
April 1, 1919	48.4	38.9	57.1	26.5	34.2	28.4	36.1
March 1, 1919	58.1	42.4	61.4	39.1	47.8	41.8	52.7
Feb. 1, 1919	52.3	41.5	65.6	38.7	39.8	41.1	48.6
Jan. 2, 1919	40.3	32.6	65.8	32.2	30.7	36.5	37.5
Dec. 1, 1918	22.5	24.9	58.0	13.8	17.8	16.1	27.4

In knit goods and hosiery the year, after opening weak and with fluctuations, saw increased demands and appreciation of values, ranging all the way from underwear, where there was limited production, to hosiery where, from cotton to silk, the demand was sustained and prices rose. In hosiery the only small demand was in low-ends of which stocks had accumulated.

NEW ENGLAND COTTON MILLS. The cotton mills of New England enjoyed a prosperous year

the armistice, and were putting back in the form of capital outlay for plant and equipment a large part of their earnings, together with new investments. Experience had shown that the most successful field for southern textile activity was in the production of the finer grades of cloth and big quantities of yarn demanded by the knitting mills. In addition, many of the new mills were spinning yarn for hosiery mills. In the direction of new equipment, New England was furnishing most of the textile machinery for

the southern mills, and the machinery works of that section had contracts on file for several years of their production to meet the needs of southern textile mills.

The total of spindles and looms in the reports of 1919 is 770,000 and 11,000 for both the new and enlarging mills. Conservatively estimated at \$300 for looms and \$70 for spindles, a proper figure for an average according to mill engineering experts, these spinning and weaving equipments indicated an investment of \$58,900,000 for the spindles and \$3,300,000 for the looms, with their accompaniments in the way of buildings, etc.

TEXTILE MILL CONSTRUCTION. In new mill construction during 1919 there was an increase over the previous year which doubtless would have been greater if mill equipment could have been more readily obtained from the manufacturers of machinery who were unable to meet the demand for new looms, spindles, etc. The high cost of construction also had a deterrent effect upon a number of new projects in the textile as in other industries, although in some cases manufacturers felt justified in view of existing business and anticipated conditions in securing increased plant facilities even at an abnormal cost, although many concerns did not take this condition into consideration at all, believing that their increasing business would warrant any outlay in expense. According to the authoritative summary of mill construction annually compiled by the *Textile World Journal* there were 289 new mills erected, a number in excess of 1918 but not reaching the mark attained in 1917. The average for 10 years was 260.

Comparison of new mill construction of the 10 years 1910-19 follows:

	1919	1918	1917	1916	1915
Cotton	74	29	52	51	24
Wool	54	24	24	23	19
Knitting	84	120	97	113	111
Silk	61	49	86	60	25
Miscellaneous	16	27	38	33	40
Total	289	254	297	280	219
	1914	1913	1912	1911	1910
Cotton	26	27	37	32	67
Wool	21	24	24	20	31
Knitting	110	142	122	92	113
Silk	51	54	46	38	34
Miscellaneous	37	30	36	26	29
Total	245	277	265	208	274

In the above summary for 1919 the most impressive development is that of the cotton mills. There were to be noted 74 mills or large additions, and in this division of textiles the yarn industry made the greatest gain, 22 new mills being listed under hosiery and fine and coarse yarns, while auto tire fabrics follow with five, heavy ducks also being included in the product of some of the latter plants. As regards distribution by States North Carolina led in new mill construction, with Rhode Island, Massachusetts, Georgia, and South Carolina, following in the order named. The large plant of the Pacific Cotton Mills Company, at Los Angeles, Cal., operated by the Goodyear Tire & Rubber Co. of California was cited as a striking addition to the leading cotton mills of the year.

In addition to new construction conditions in the industry were such that many old established

concerns made important enlargements and improvements to their plants during 1919.

The new woolen and worsted mills of 1919 were fairly well distributed; five were in New England, four in Pennsylvania, three in New York, two in California, one each in Portland, Ore., and Chicago, Ill. In the Dominion of Canada three new mills were built. The majority of the new woolen and worsted mills however were not of large size in comparison with the extensions made by old companies, as notable additions and improvements were made to a number of plants already in operation.

While the gain in new mills for the knitting industry was not so great as in 1918, when 120 mills were built, it was however marked and important. Thirteen new mills were built to be operated on sweater coats, located principally in New England, New York, and Pennsylvania; while silk hosiery was to be the produce of nine new plants covering the same States with the addition of New Jersey. The new mills of the Southern States were to confine their operations to cotton or mercerized hose. Jersey cloth continued in demand and was manufactured by seven new concerns.

Numerous enlargements and improvements to knitting mills were made on an extensive scale, and the purchase or leasing of existing mills was a feature of the 1919 expansion.

The silk industry continued to locate and show the greatest expansion in New Jersey and Pennsylvania. In these States new mills were built and many new concerns occupied old plants or leased space in established mills.

The miscellaneous mills included in the table comprised 10 whose activities embraced dyeing, bleaching, and finishing.

BRITISH TEXTILES. During the year 1919 a total of 162,666,000 pounds of cotton yarn was exported, as compared with 87,288,000 pounds for the year 1918. The total in piece goods exports in 1919 was 3,528,757,000 yards, as compared with 3,699,253,000 yards for the year 1918. These figures were subdivided as follows:

	Yards	
	1919	1918
Gray goods	841,858,000	754,098,000
Bleached	1,084,083,000	1,200,715,000
Printed	690,829,000	809,353,000
Dyed	912,487,000	935,087,000

During the year 1919 a total of 24,651,000 pounds of worsted yarns were exported, as against 13,874,000 pounds for the year 1918. Exports of woolens were 130,988,000 yards in 1919, compared with 67,383,000 yards in 1918, and of worsteds 33,266,000 pounds in 1919, compared with 31,081,000 pounds in 1918.

In Great Britain there was a reduction in output, partly accounted for by a 14 per cent reduction in working hours and by the fact of a smaller number of operatives and that some of the machinery is not up to normal.

According to a statement dealing with 23 cotton spinning companies, the profit of their share capital was 35.95 per cent, as compared with 34.34 per cent for 1918. The percentage of profit on share and loan capital combined was 25.84 per cent, compared with 21.90 per cent in 1918. The 23 companies made a combined profit of £340,000, which gives an average profit of £14,786 a company. These companies had a

prosperous year from the dividend point of view and perhaps constitute about the best group of mills in Lancashire.

In addition to dividend distribution, it was further stated that they had amassed considerable reserves. A computation was made on 100 companies with a share of capital of £4,723,475. The average dividend paid by these companies was 21.34 per cent on share capital. Undoubtedly there was also a large amount of loan capital which had been held at low rate of interest. Many of these companies have issued a bonus in addition to dividends, and some of them have recently increased their nominal capital by bonus additions which have been paid out of reserves. In this connection it was of interest to recall that these profits were being studied by the operatives as a basis for future wage demands.

According to some views the coming year will be a test for many of the Lancashire cotton mills, particularly those that have been refloated during the past months or which have increased their capital value to make it consistent with the present price of money. The figures quoted above represent little more than one-sixth of the entire spindleage of Great Britain and, of course do not afford a fair idea of what was done in the whole of the Lancashire cotton industry.

FRANCE. Prior to the war, in 1912, France had 140,000 looms, of which 110,000 were machine, and 10,000 hand looms. The coming of the war was particularly unfortunate, as it overtook France in a period of rapid industrial growth. From 1910 to 1912 her production of cotton textiles, including hosiery, lace and other trimmings, and the like, had increased from 120,000 tons to 225,000 tons. She imported some 24,392 tons of finished cotton products—and she exported 50,613 tons. Of the cotton textiles imported into France, Great Britain furnished 50 per cent and Germany 32 per cent. Of the cotton textiles exported by France, French Colonies took 55 per cent. Under the post-armistice conditions by adding the 46,000 looms of Alsace and keeping the same proportions for the normal year when it comes again, France would have a production of 273,000 tons of cotton textiles, of which she could export 96,000 tons.

These significant figures do not include the production of cotton threads and yarns and their waste, for whose manufacture France had before the war 7,500,000 spindles. In this line French production yielded 197,500 tons, which was 5 per cent of the world's production. This was about the figure of French consumption, the few exports (9000 tons) being balanced by the imports. Alsace-Lorraine added 1,700,000 spindles, which would bring up French production—when ever the ruined factories of the regions devastated by the Germans are reconstructed—to a point where it would be possible for France to export 12,000 tons clear. It was the opinion of experts, expressed in terms of import and export, that France—after reconstruction—should have 9,425,000 spindles, 166,000 looms, and 290 machines for cotton prints. To keep these working, she would need each year 338,000 tons of raw cotton—and this must be supplied by imports, as, with the French activity and ability to reestablish, the textiles factories will be in active operation long before her colonies can supply any considerable portion of this amount. France should produce 205,000 tons of cotton threads

and yarns, of which she will be able to spare 36,000 tons to sell abroad, and 272,600 tons of textiles, of which 100,000 tons will be available for exportation. See SILK.

TEXTILES. See CHEMISTRY, INDUSTRIAL.

THAYER, STEPHEN HENRY. Banker and author, died in New York city, December 17. His death occurred on his 80th birthday. He was born at New Ipswich, N. H., Dec. 16, 1839. He engaged in banking and was a member of the New York Stock Exchange for 35 years. He had been in the early part of his life a director in several steamship and mining companies. Later he devoted a large part of his time to editing and writing, and was financial editor of the *Christian Union* and *Outlook* from 1883 to 1894. His books include, *Songs of Sleepy Hollow* (1886); *Songs from Edgewood* (1902); and *Daughters of the Revolution*, a novel (1900); and he was the author of various essays on American and British poets.

THEOSOPHICAL SOCIETY. An international society whose president is Mrs. Annie Besant, with headquarters at Adyar, Madras, India. The American section has its headquarters in Krotana, Hollywood, Los Angeles, Cal., where the Krotana Institute is maintained. The society originally had its headquarters in New York, but they were removed to India in 1879. At the close of the fiscal year, the American section consisted of 198 lodges, with a total active membership of 7048, a slight increase over 1918. The National Publicity Department issued a number of booklets on subjects related to theosophy, notably, *The Power and Use of Thought*, by C. W. Leadbeater; *Memory Training*, by Ernest Wood; *Modern Science and the Higher Self*, by Mrs. Annie Besant; and *Intuitionist Consciousness*, by Francesca Arundel. The officers for 1919 were: President, A. P. Warrington; secretary, Foster Bailey; acting dean of Krotana Institute, Dr. F. F. Strong.

THOMAS, CALVIN. American educator and Germanic scholar, died in New York, November 5. He had been head of the department of Germanic languages and literatures at Columbia University for 23 years. He was born at Lapeer, Mich., Oct. 23, 1854, graduated at the University of Michigan in 1874, taught Latin and Greek at a high school in Grand Rapids, 1874-77, and then studied for a year at Leipzig. In 1878 he became instructor of German in the University of Michigan, where he was appointed to the chair of Germanic languages and literatures in 1886, holding that position for 10 years. After 1896 he held the corresponding chair at Columbia. He was regarded as one of the best Germanic scholars in the country, and by his vigorous and interesting personality exerted a strong influence in educational circles. Unlike many other Germanic specialists in the United States he was outspoken in his hostility toward Prussianism during the war, and condemned the tendency of certain professors of German to sentimentalize in regard to the German character in that time of stress. His contributions to Germanic philology and literature were very numerous, and included, apart from numerous writings and monographs, the following books: *A Practical German Grammar* (1895); *Life and Works of Schiller* (1901); *German Literature* (a history, 1909); *Goethe* (1917). He edited: (English intro., and notes) *Goethe's Torquato Tasso* (1888); *Goethe's Faust* (First Part, 1892; Sec-

ond Part, 1897); Goethe's *Hermann und Dorothea* (1891); *An Anthology of German Literature* (1909); also other German classics for school and college use.

THOMAS, CHAUNCEY. Rear admiral in the United States navy, died at Pacific Grove, Cal., May 12. He was born at Barryville, N. Y., April 27, 1850, and graduated third in his class at the Naval Academy in 1871. He served during the Spanish-American War, being at that time lieutenant-commander and commander and he was made rear admiral on March 10, 1910. Besides other duties he served in the hydrographic office, 1894-96, and the Philippine Insurrection in 1900-01, in which he was executive officer of the *Yorktown*, taking part in several engagements. In 1908 he took the battleship trophy for excellence in target practice. Among his later services may be mentioned that of president of the board of inspection and survey for ships and commander-in-chief of the United States Pacific fleet. He was retired from active service April 27, 1912.

THOMPSON, DWINELL FRENCH. College professor, died at Troy, N. Y., April 19. He was born at Bangor, Me., Jan. 1, 1846, and graduated at Dartmouth in 1869. After 1872 he was professor of descriptive geometry and drawing at the Rensselaer Polytechnic Institute and after 1916 was professor emeritus. He edited works pertaining to draughtsmanship.

THOMPSON, JOSEPH B. Congressman, died at Glen Cove, L. I., March 8. He was born in Grayson County, Texas, April 29, 1871, and graduated at Savoy college, Texas, in 1890. Two years later he was admitted to the bar and practiced in Indian Territory. He was a delegate to the Democratic National Conventions of 1900, 1904, and 1908, and was a member of Congress from 1913 to 1919.

TIBET. An extensive region forming a dependency of China, reaching from the Pamirs eastward to the frontiers of China. Estimated area 463,200; estimates of population vary from 1,500,000 to 6,000,000; a probable estimate, about 2,000,000. Capital, Lhasa, with a population of from 15,000 to 20,000. Agricultural methods are primitive. Gold, borax, and salt are products. Trade is chiefly with India and China. In 1916-17 imports from India were £144,749, and the exports to India were £331,079.

TICK ERADICATION IN CATTLE. See VETERINARY MEDICINE.

TILFORD, HENRY MORGAN. American financier, died in New York City December 3. He had been vice-president of the Standard Oil company of New York, and for more than 20 years one of the chief influences in the Company. He was born at Lexington, Ky., in 1857; entered the Standard Oil company in 1887 and was active in promoting the business in the West. He was subsequently called to New York which remained his headquarters. He retired from active service in 1911.

TIMBER. See FORESTRY.

TIN. The embargo on the importation of tin into the United States continued until Aug. 1, 1919, and this together with disturbed conditions of exchange affected the market, which fluctuated almost as much as in 1918. As the exchange value of the pound fell in New York the lower became the import cost there and conversely the higher went prices in London. The average London price of tin before the war in

1911, 1912, and 1913, was £201 per long ton, and this when compared with the low value of the pound on the sole basis of exchange value would involve the marking up of the price to £268. This however was but one of the factors governing the tin market in 1919 and it came out that in the previous year the War Industries Board in the United States had made large purchases so that an American supply was assured. The war surplus brought over and the imports of the year as will appear from the tables below gave the United States an ample visible supply at the end of the year though considering all nations and services not sufficient to reduce prices in the immediate future. The fluctuations in the prices of tin at New York and London during 1919 and previous years will appear from the accompanying table from the *Engineering and Mining Journal* (New York):

MONTHLY AVERAGE PRICES OF TIN IN
1917, 1918, AND 1919

Mo.	New York			London		
	1917	1918	1919	1917	1918	1919
Jan.	44.175	85.500	67.702	185.813	293.227	248.557
Feb.	51.420	92.000	66.801	198.974	311.525	223.963
March	54.388	(a)	67.934	207.443	318.875	236.843
April	55.910	(a)	72.500	220.171	329.905	225.275
May	63.173	(a)	72.500	245.114	364.217	234.398
June	62.053	(a)	71.240	242.083	331.925	238.263
July	62.570	(a)	68.000	242.181	360.347	253.272
Aug.	62.681	(a)	57.226	243.978	380.900	273.625
Sept.	61.542	(a)	54.482	244.038	343.905	280.102
Oct.	61.851	(a)	54.377	247.467	335.543	279.239
Nov.	74.740	(a)	53.307	274.943	328.550	283.556
Dec.	87.120	(a)	53.870	298.556	267.736	314.113
Aver. year	61.802	(a)	63.328	237.563	330.138	257.601

(a) No average computed.

New York in cents per pound; London in pounds sterling per long ton.

The highest and last price in London for standard tin was £341¼.

The New York Metal Exchange for the first time since the war compiled statistics covering the movements of tin during the year 1919, including shipments from points of production, deliveries and visible supply. In order to make comparisons with normal times the figures for 1919 are contrasted with corresponding items of 1913.

The figures represent tons of 2240 pounds. They are given as follows:

SUPPLIES			
	1919	1913	
Shipments from—			
Straits Settlements	49,763	62,500	
Australia	2,900	3,200	
Bolivia	25,824	24,850	
South Africa	5,544	3,200	
China to Europe and U. S.	565	2,450	
Banka sales	14,291	14,800	
Billiton sales	981	2,200	
Production in Cornwall	3,800	5,800	
Grand total	103,668	119,000	
DELIVERIES			
	1919	1913	
London deliveries	19,037	17,897	
Continent of Europe	10,656	25,631	
Cornwall production figured as delivered	3,800	5,800	
Arrivals of Bolivian in Europe	14,228	24,850	
African production figured as delivered	5,544	3,200	
Arrivals of Chinese in Europe	400	2,450	
United States	43,897	45,551	
Grand total	97,562	116,079	

VISIBLE SUPPLY

	Year ending Dec. 31,	
	1919	1918
London—		
Stock	3,458	3,253.
Afloat	2,780	5,211
Total	6,238	8,464
Holland—		
Stock	2,225	932
Afloat	1,976	183
Total	4,201	1,115
United States—		
Stock	3,438	2,199
Afloat	8,010	2,115
Total	11,448	4,314
Grand total	21,887	13,893

Comparative statement of United States deliveries:

	1919	1918	1917	1916
Atlantic ports	19,256	12,257	36,700	43,350
Pacific ports	13,045	45,770	21,181	12,866
Refined Bolivian ores	11,596	9,854	4,849	3,845
Total	43,897	67,881	62,730	60,061

Classification of tin imports into the United States January 1 to December 31:

	1919	1918
Straits	26,225	34,243
Australian	1,675	3,345
Banka and Billiton	2,271	7,590
English	4,700	6,647
Chinese	165	5,967
Sundries	368	235
Total, tons	35,404	58,027

Comparative statement of arrivals of Bolivian tin ores, etc., in Europe and the United States reduced to fine tin (in tons of 2240 pounds) gave European receipts for 1919 as 14,228 tons as compared with 17,329 tons in 1918, and United States receipts 11,596 tons in 1919 as compared with 9854 in 1918.

In view of the fact that through the Straits Settlements come the world's largest supplies of tin the industry in the Federated Malay States is worthy of attention. The value of the 37,370 tons of tin exported from the Federated Malay States in 1918 was £11,032,234, which compared with £8,489,610, the value of the 1917 export of 39,833 tons. The Customs record of exports from each of the four States was as follows:

	1917		1918	
	Tons	Value £	Tons	Value £
Perak	24,643	5,264,215	22,984	6,794,986
Selangor	10,960	2,323,541	10,744	3,171,762
Negri Sembilan	734	157,346	625	181,969
Pahang	3,496	744,508	3,017	883,517
Total	39,833	8,489,610	37,370	11,082,234

The amount of export duty collected in 1918 was £1,533,240, compared with £1,102,193 in 1917 and £928,031 in 1916, in both of which latter years the export was larger. The explanation was that duty was paid on a sliding scale based on the price of tin. To the 1918 revenue for duty had to be added £226,192 raised as a war tax by the States for contribution to the

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Imperial Exchequer. This special surtax was suspended on December 28th. In 1918 the highest price for tin constituted a new record.

In 1918 the idle plant in the Malay States was extensively employed, and every machine available and able to be repaired was used. Fourteen bucket dredges operated in Perak, one in Selangor, and one in Pahang. The total output by bucket dredges was 3299 tons. The geological survey of the Malay States was interrupted in 1918, due to the absence of the government geologist and his assistant on war service. The employment of a staff of economic mining geologists was under consideration, and various methods developed in which conservation of resources was contemplated, as it was stated that the tin deposits in the Federated Malay States were by no means inexhaustible. See CHEMISTRY, INDUSTRIAL.

TIROL. An Alpine region which before the disruption of the Austro-Hungarian Empire was a crownland of Austria, making up the greater part of the administrative district of Tirol and Voralberg; with Bavaria on the north and Salzburg and Carinthia on the east. Area 10,302 square miles; population according to the census of Dec. 31, 1910, 946,613.

TOBACCO. The tobacco crop in the United States, in 1919, amounted to 1,389,458,000 pounds, being surpassed only by the crop of 1918 with 1,439,071,000 pounds. The production in 1919 was nearly 300,000,000 pounds above the five-year average. The acreage was the largest ever planted, despite warnings against plunging in that crop as a result of high prices due to war conditions. Four large crops have now been grown in succession, and the domestic manufacture of leaf tobacco has shown a large increase due mainly to the increased production of cigarettes.

Tobacco has become one of the great sources of revenue to the government in the United States. The total receipts for all tobacco taxes during the fiscal year 1919 amounted to \$206,003,091.84, an increase of \$49,814,431.94 or 31.8 per cent over the preceding year. The total receipts were lower than originally estimated because considerable quantities of tobacco were withdrawn tax free for the use of the army and navy, and manufacture was somewhat curtailed by transportation and labor shortages. The rapid increase since 1910 in the number of cigarettes manufactured compared with the number of cigars is an important tendency in the industry. In 1919 the number of cigarettes was 46,500,000,000 while that of cigars was approximately 8,000,000,000, the same as in 1910. For the first time the amount of leaf used in cigarette manufacture was larger than in the manufacture of cigars, the amounts being approximately 177,000,000 and 162,000,000 pounds, respectively. The largest increase in revenue was from cigarettes and the smallest from little cigars. The success of the prohibition movement in the United States was followed by organized agitation against tobacco.

Tobacco consumption in Japan has increased greatly from year to year. The total value of the product manufactured and disposed of in that country for the fiscal year ended March, 1919, was reported as \$65,294,793.

TOBAGO. See TRINIDAD AND TOBAGO.

TOGO. Formerly a German colony in West Africa constituting a Protectorate and situated

on the coast between Dahomey and the Gold Coast. It surrendered unconditionally to the Entente Allies in August, 1914, and its political status was the subject of determination along with that of the other German colonies at the Peace Conference in 1919. Area, 33,700 square miles; colored population (1913), 1,031,978; European population (estimated in 1918), 110. It was the smallest of the German African colonies but had a larger average population per square mile than any of the others. The southern half of the region is peopled by natives of very divergent linguistic type, speaking some 30 different languages. The northern half is inhabited by tribes descended from Hamitic stock. The soil is fertile in the coast region where the chief products are corn, yams, tapioca, ginger, and bananas. The chief trade is in palm oil, palm kernels, and gum. There are plantations of palms, cocoa, coffee, manioc, kola, rubber, fibrous plants, etc. The imports in 1917 were £345,866; exports £473,774. It was invaded by French and British forces in 1914 and after the surrender of the Germans (August 7th) was provisionally divided into two spheres; one administered under the Government of the Gold Coast (British) and the other under the Government of Dahomey (French).

TONGA or the **FRIENDLY ISLANDS**. Three groups of islands in the Pacific Ocean, constituting a French Protectorate; lying between 15° and 23° 30' south and 173° and 177° west. Area, about 390 square miles; population (estimated 1917), 23,766, consisting of 22,590 Tongans, 300 half-castes, 529 other Pacific islanders, and 347 Europeans. The natives have been for the most part Christianized. Capital, Nukualofa.

TONGKING. A territory annexed by the French in 1884 and now comprising the northernmost division of the colony of French Indo-China; bounded on the north by the Chinese provinces of Kwangsi and Yunnan. Capital, Hanoi, with a population (1915) of about 150,000. Hanoi is the capital also of French Indo-China. The chief crop is rice. Other products include corn, sugar cane, silk, cotton, coffee, fruit, and tobacco. See **FRENCH INDO-CHINA**.

TORONTO, UNIVERSITY OF. An institution of learning, located at Toronto, Canada. In the fall of 1919 there were enrolled 4332 students, and over 500 members in the faculty. The income for the year 1918-19 was \$984,733, and the expenditure \$1,191,602. The deficit of \$200,000 was met through a special grant from the government. The assessed valuation of the university proper, as of June 30, 1919, was \$7,776,887. The library contains 158,474 volumes. In 1919-20 a six-year course in medicine was introduced, leading to the degree of M.B. In the fall of 1919 there were enrolled in the College of Medicine 1089 students. A gift of \$500,000 was received from Sir John and Lady Eaton for medicine; also a legacy of \$50,000, from the late Dr. W. J. Mickle, to found two fellowships in the Faculty of Medicine. Hart House, the gift of the Massey Foundation, comprising a Students' Union, Y. M. C. A., gymnasium, dining hall, and theatre, was opened in 1919. A legacy of \$2000 was received from the late Dr. R. A. Reeve to found a scholarship in household science, and a gift of \$2000 from Mr. T. M. Porter to found a scholarship in the University Schools. The university was founded in 1827. Presi-

dent, Sir Robert A. Falconer, K.C.M.G., M.A., LL.D., Litt.D.

TORPEDO BOAT DESTROYERS. See **NAVAL PROGRESS**.

TORPEDO BOATS. See **NAVAL PROGRESS**.

TOWER, DANIEL BRINK. American composer, died in Chicago, October 16. He was born at Rome, Pa., March 5, 1850, and began as a teacher of music at Binghamton, N. Y., in 1873, but afterwards joined Dwight L. Moody as a soloist and musical director (1884). He wrote or edited a large number of works on music including many collections of revival hymns, famous hymns, gospel songs, choruses and hymns for male voices, etc.

TRACK AND FIELD ATHLETICS. See **ATHLETICS**.

TRADE UNIONS. During the last year, the scope and influence of labor organizations, as well as their membership, have greatly increased. The recognition of the trade unions by many of the governments during the war (see **NATIONAL WAR LABOR BOARD**) gave additional impetus to the movement. Labor organization has gained prominence in this country due to the unusual number of strikes and lockouts (q.v.) in major industries, as well as through their acceptance as the representatives of labor in the President's Industrial Conference (see **ARBITRATION AND CONCILIATION**). The tendency has been largely towards the development of one large federation, the American Federation of Labor (q.v.), while in a number of countries, Great Britain, Germany, Spain, and others, there is a definite recognition of labor in politics. See also **LABOR**; and for programmes of reform, see **INDUSTRIAL RECONSTRUCTION**; for settlement of disputes, see **ARBITRATION AND CONCILIATION**.

NATIONAL LABOR PARTY. Although the American Federation of Labor has stated as its policy, a non-partisan attitude in politics, there has been an increasing demand for an active labor party. On August 18th, a conference was held in Chicago by 30 executive committeemen representing nine States having organized labor parties. As a result of this conference, on November 22d, the opening session of a Labor Congress was held in Chicago. Some 1000 delegates were present, representing State labor unions, some affiliated with the American Federation of Labor, delegates from farmers' organizations, cooperative societies, non-partisan and Plum-plan advocates, and other workers for more advanced labor and social legislation. A new labor party was formed which adopted a programme demanding free speech, free assemblage, and a free press. The convention announced its intention not to nominate a national ticket at that time, but to issue a call for a convention to be held next Spring for that purpose.

RAILROAD BROTHERHOODS. The largest labor organization in this country not affiliated with the American Federation of Labor, are the railroad brotherhoods. At the Atlantic City Convention, on June 23d, President Gompers of the American Federation of Labor, announced that application for membership had been made by the Order of Railroad Conductors, Brotherhood of Locomotive Engineers, Brotherhood of Railroad Firemen, and Brotherhood of Railroad Trainmen. The total membership of the "Big Four" is over 500,000.

INTERNATIONAL RELATIONS. The International Trade Union Conference, a by-product of

war coöperation, was attended by 41 delegates representing 11 countries, including the United States and Great Britain. It took up a discussion of labor legislation, and outlined a programme for the Peace Conference. A permanent committee and a permanent international labor office of control for protection of the working classes is anticipated, as is also an International Labor Parliament to be called once a year, insisting on a prompt and definite reestablishment of an international trade union body.

GREAT BRITAIN. British labor has more nearly reached the stage of complete organization than that in any country. In June, figures furnished by the London agent of the Bureau of Labor Statistics, reported the total trade-union membership as nearly 5,436,000 of which 890,000 are engaged in mining.

At the present time, there are two different types of labor organizations active in Great Britain. The organization known as the Trades Union Congress is based upon trade unions, very much similar to those in the United States, with each craft as a basis of organization. There is likewise, an organization having each industry as its basis. This is known as the Whitley Council, and is being introduced through all the industries, to bring about better coöperation between employer and employee. For details of this plan, see **ARBITRATION AND CONCILIATION**.

The 51st annual Trades Union Congress was held in Glasgow on the 8th of September. There were present 200 delegates, representing 5,248,330 workers, in comparison with 191 representing 4,501,022 in 1918, or an increase of 747,308 over the previous year. Every industry represented showed an increase over the previous year, the greatest being in the Chemical, gas, and general laborers, from 865,270 to 1,912,548. Some of the other industries were: Building 276,950; mining and quarrying 684,300; textiles 474,204; transport, 800,936; shop assistants and clerks, 150,065. The more important decisions of the Congress are as follows—instructing the Parliament Committee to draft a policy for the control of industry "without wage slavery"; request for a national conference with regard to the Conscription Act; rejection of government scheme for control of coal industry; offer to coöperate with Miners' Federation of Great Britain to endeavor to secure the scheme recommended by the majority of the Coal Industrial Commission; request for the repeal of the Military Service Acts, and the withdrawal of troops from Russia.

CANADA. The annual report for 1918 on labor organization in Canada, shows that trade unions have reached their highest point in the Dominion. At the close of 1918, membership totaled 248,887 composed of 2274 branch unions, a total increase for the year of 44,257 in membership and 300 in local unions. There are 96 international organizations having one or more local branches in Canada, and composing 1897 of the branch unions, a gain over 1917 of 195. International membership reported from respective headquarters was 201,432, an increase of 36,536. The total benefits paid by international organizations in Canada during 1918 were \$16,802,092, an increase of \$3,626,713 over 1917. Payments made by local branch unions aggregated \$431,504, an increase of \$118,388 over 1917. For the international unions, the totals were: Death benefits, \$12,679,934; unemployment and traveling expenses, \$91,372; strike benefits, \$1,973,

418; sick and accident benefits, \$1,294,268; old age pensions, \$763,100.

GERMANY. Just before the outbreak of the war, the German trade unions had held their ninth Congress in Munich. During the war, the convening of the labor class was impossible. The end of the war, however, was soon followed by the 10th Congress, which was held in Nuremberg from June 30th to July 5th. In point of membership, this Congress showed the trade unions to have reached the highest point in their history. In July, 1914, the membership of the Free Trade Unions was 2,512,000. It fell to 995,000 during the first half of 1917, but grew in the middle of 1918 to 1,370,000, and by the end of 1918, had a membership of 2,860,000. As a result of the revolution, in February, it reached the third million, in May the fourth, and on the occasion of the Congress, the last of June, the membership was 5,500,000. This Congress had 644 delegates. In order to create a closer tie between the individual German Free Trade Unions, a new Trade Union Federation was formed, the object of which is the constant coöperation of various unions in the protection of the interests of organized workers in Germany. A definite political neutrality was agreed upon.

ALSACE-LORRINE. A conference was held in Strassburg on January 4th, with the end in view of regulating the relations of the Alsace-Lorraine trade unions with the French trade union's federation. After a lengthy discussion, a regulation proposed by Herr Imbs, providing for three district associations, with headquarters at Metz, Strassburg, and Muhlhausen, to embrace all the 48 existing trade union groups, was carried unanimously. These three associations form the regional association for Alsace-Lorraine, and will be joined to the French trade unions' federation as such.

SPAIN. The General Union of Workmen in Spain held its 13th annual convention in Madrid Sept. 30, 1918, with 124 delegates present, representing 82,024 workers. This union has 468 branches and 89,601 members. Although a general strike had been attempted in August, 1917, the labor organizations were not strong enough nor sufficiently equipped to carry it through. Measures urged by the convention were: establishment of minimum wage; prohibition of woman and child labor, in work disproportionate to their strength; equal pay for sexes in equal work; better education; more satisfactory accident compensation.

DENMARK. On April 25th, was held in Copenhagen a general meeting of the Danish Coöperative Trade Unions, embracing 255,000 organized laborers. There were 456 representatives present and also delegates from Germany, Sweden, and Norway. During the period 1916-1918, the number of organizations increased from 51 to 54, the number of local unions from 1315 to 2367, and the membership from 132,000 to 255,150, or a growth of 93.3 per cent.

TRAIL, JAMES WILLIAM HELENUS. Professor of botany at the University of Aberdeen after 1877, died September 18. He was born in the Orkney Islands, Mar. 4, 1851, and was educated at the University of Aberdeen. He traveled as a naturalist in Brazil 1873-75, and published many papers on botany and zoölogy.

TRANSVAAL. See **SOUTH AFRICA, UNION OF**.

TRANSYLVANIA. From 1867 to the clos-

ing months of 1918 a part of the crownlands of Hungary; political status in 1919 indeterminate pending final settlement by the Treaty. Area 22,318 square miles; population according to the census of Dec. 31, 1910, 2,678,367; distributed according to the languages spoken as follows: Rumanian, 1,472,021; Hungarian, 918,217; German, 234,085. Rumania claimed the country, alleging that despite the antiquity of the Austrian annexation it was plainly a part of Rumanian territory and she compared her claim to that of France on Alsace-Lorraine. The Transylvanians declared their independence of Hungary on Dec. 2, 1918, and on Jan. 11, 1919, Rumania by royal decree annexed the territory. See WAR OF THE NATIONS.

TRAUBEL, HORACE. American author, died at Camden, N. J., September 9. He was especially known as a friend and literary executor of Walt Whitman. He was born at Camden, N. J., Dec. 18, 1858, and educated at the public schools there. He was editor of the literary paper the *Conservator*, published in Philadelphia, and the author of the following works: *Chants Communal*, (1905); *With Walt Whitman in Camden* (a diary, vol. i, 1905; vol. ii, 1908; vol. iii, 1914); *Optimos* (poems, 1910); *Collects*, (1914).

TRIESTE. Before the disruption of the Austria-Hungarian empire a crownland of Austria, consisting of the Mediterranean port of Trieste with the surrounding region; occupied by Italy after the war. A semi-official estimate placed the population of the city itself at 190,013 in 1919. From November, 1918, to July, 1919, the first period under Italian occupation there was very little importation. See WAR OF THE NATIONS.

TRINIDAD AND TOBAGO. A British colony in the West Indies comprising the islands of Trinidad (area 1860 square miles), and Tobago (114). Total population, 333,552; estimated Dec. 31, 1917, 377,021. Capital, Port of Spain, population (60,000) for the year ending Mar. 31, 1917. The financial and commercial figures were as follows: Revenue, £1,098,183; expenditure, £1,097,696; imports, £5,308,996; public debt, £1,651,853. Governor at the beginning of 1919, Major Sir J. R. Chancellor.

In 1919 measures were taken to promote the fruit industry of the islands. It was proposed that the local industries should be organized in such a way that the planters throughout the colony would have a definite assurance that their fruit would be taken. For the purpose of export trade especial attention was called to the growing of oranges, grape fruit, and mangoes.

At the close of the year the administrative council authorized the government to declare certain articles to be in common use, and to prescribe the maximum retail price on them with a view to preventing profiteering. The penalties for the violation of this act were severe.

TRINITY COLLEGE. An institution for the education of men, at Hartford, Conn. Enrollment for the fall of 1919, was 226, with 18 members in the faculty. Volumes in the library, 90,000, with about 45,000 pamphlets. Productive funds of the college total \$1,500,000. The college was founded in 1823 as Washington College, by members of the Protestant Episcopal Church. The present name was adopted in 1845. Acting President, Henry A. Perkins.

TRIPOLI. See LIBYA.

TROPICAL STORM. See HURRICANES.

TRUMBULL, JONATHAN. Writer and librarian, died at Norwich, Conn., May 21. He was born at Norwich, Conn., Jan. 23, 1844, and was educated at the free academy there. He was prominent for many years in library work, and wrote historical works on Israel Putnam, Joseph Trumbull and *The Share of Connecticut in the Revolution*, and literary works on Shakespeare.

TRUMBITCH, ANTE. Serbian representative at the Paris Peace Conference. He was Foreign Minister of the new Jugo-Slav state, consisting of Serbs, Croats, and Slovenes. He had been a prominent lawyer in Dalmatia where he became president of the Diet, and which he represented in the Austrian Parliament. He was one of the framers of the resolution of Fiume in 1905 for the union of Croats and Serbs. He escaped from Austria just before the war, and constituted with other leaders the southern Slav committee, which chose him as president. In July, 1917, he concluded with Serbia the famous Declaration of Corfu, which led to the organization of the southern Slav state. In March, 1918, he concluded with the Italian representative the agreement between the southern Slavs and Italy, which was ratified by the congress at Rome and approved by Signor Orlando in April of that year. After the creation of the new Southern Slav state, he was appointed foreign minister.

TRUSTS. The country's gradual return to a peace basis in 1919 led to resumption of the operation of the anti-trust laws. In view of new problems created by recent industrial activities, there was also a demand for legislation which would adequately provide for conditions which did not exist when the laws were enacted. The desire for new legislation was reflected in the recommendation of the United States Chamber of Commerce on April 4th that Congress reconsider the existing anti-trust laws. This recommendation was the result of the Chamber's referendum vote of the business interests of the country as represented in trade and commercial organizations. The proposals, advanced by a special committee which had studied the subject, were voted on as follows: (1) Congress should be asked immediately to consider the present situation of all statutes constituting our anti-trust legislation—for, 1543; against, 51; (2) in consideration of existing anti-trust legislation, there should be formulation of standards of general business conduct, to be administered by a supervisory body—for, 1159; against, 389; (3) an enlarged Federal Trade Commission should be made the supervisory body—for, 1102; against, 437; (4) in view of the importance of the functions of the Trade Commission, the membership of the Federal Trade Commission should be increased to nine—for, 1104; against, 422. The need for new legislation is seen in the new type of trust which has arisen since the present laws were made. The modern trust seeks not only to overcome competitors, but also to gain control over competing or substitute commodities.

As a result of the war, government suits against several companies were postponed for that period, and reopened in 1919. Few of these suits were decided in the year.

On Dec. 9, 1918, the Supreme Court decided

that the Du Pont powder interests were not a trust, and need not pay damages asked by the Buckeye Powder Company. The latter concern charged the Du Pont firm with using unfair methods, such as price cutting, to force them out of business.

NATIONAL ASSOCIATION OF AUTOMOBILE ACCESSORY JOBBERS. Members of the National Association of Automobile Accessory Jobbers, who had been on trial before Judge Learned Hand on a charge of violating the Sherman Anti-trust Law, were found not guilty by the jury on Feb. 7, 1919. The defendants had been charged with seeking to fix prices, restrain trade and limit output. The trial was begun on January 14th. In the indictment, charges dating back to the formation of the association at the Union League Club, Chicago, on May 11, 1915, were made against certain officers and members of the National Association of Automobile Accessory Jobbers.

CORN PRODUCTS REFINING COMPANY. On March 31st, following an agreement made between the government and the Corn Products Refining Company, after the United States Supreme Court had dismissed the company's appeal from a conviction for violating the Sherman Anti-trust Law, Federal Judge Learned Hand filed a final decree requiring the dissolution of the \$80,000,000 concern by Jan. 1, 1921. The final decree makes a complete dissolution necessary, and prohibits it from separating the units and placing men under some central control in charge of them. The company was charged with being an illegal combination and with incorrigible persistence in interfering with the course of trade. The object of the decree was to restore competitive conditions, and the court reserved the right to take any action necessary to restore such conditions. All the officers of the company were made defendants in the government's suit. The decree provided that the company should not permit its assets to be diminished or used for other purposes than that for which they had been used ordinarily. The suit was begun by the government on Mar. 1, 1913. The complaint against the company stated that it controlled 60 per cent of the trade in glucose, starch, and their by-products. It was charged also that the company attempted to obtain freight rates that would make it easier to drive competitors out of business. In giving his opinion Judge Hand said that, "the conduct of the company showed an intent, the execution of which it was the purpose of the Anti-trust Act to prevent. There was no doubt of the intent to dominate the industry."

BALTIMORE FEDERAL LEAGUE CLUB. The Baltimore Federal League Club was awarded \$80,000 damages by the jury of the District Supreme Court of Washington, D. C., on April 12th. The suit brought against organized baseball charged it with being a combination in restraint of trade and thus violating the Sherman Anti-trust Act. The Baltimore Club claimed that it had incurred damage to the amount of \$300,000, and under the provisions of the Anti-Trust Law it sued for \$900,000. If final judgment is entered the damages will amount to \$240,000. Judge Stafford, before whom the case was tried, decided that the law had been violated, and so instructed the jury. He left the amount of the damages to that body. The defendants were the National League and its eight component clubs,

the American League and its separate clubs, August Herrmann, Bancroft B. Johnson, and John K. Tener.

COLGATE AND COMPANY. On June 2d the Supreme Court of the United States affirmed the decision of the United States District Court for the District of Eastern Virginia in the government's suit against Colgate and Company. The decision gives the manufacturer the right to refuse to sell to the price cutter, without incurring any criminal liability under the Sherman Law. In giving his decision, Justice McReynolds said, "In the absence of any purpose to create or maintain a monopoly, the act did not restrict the long-recognized right of a trader or manufacturer engaged in an entirely private business, freely to exercise his own independent discretion as to the parties to whom he will refuse to sell. The trader or manufacturer may announce in advance the circumstances under which he will refuse to sell."

During the past year the activities of the "Big Five" packers, Armour, Swift, Wilson, Cudahy, and Morris, were investigated by government agents. It was claimed that the "Big Five" not only controlled the meat packing industry, but also the butter and egg business, oleomargarine, the manufacture of fertilizer, the production of cottonseed oil, perfumes, and leather novelties, and that they were extending their control over the wholesale grocery business. Announcement of the government's intention to bring suit against the packers was made by Attorney-General Palmer on August 6th. The Attorney-General declared that the big meat packers were in 'a conspiracy to control the table of the American citizen.' The Chicago Grand Jury, which came into session in September to hear the case of the government against the "Big Five," who, it was claimed, had violated the anti-trust laws, was dismissed on October 3d, on its failure to return the anticipated indictments. A new Grand Jury was summoned to be sworn in on October 7th and to continue the case. On December 18th an agreement was reached between the Federal authorities and the "Big Five" for the filing of a decree in the anti-trust cases then pending. The settlement was far-reaching in its effects. The government agreed not to press its suit against the packers, but obtained the entry of a perpetual injunction to preclude the recurrence of certain alleged objectionable practices. The Court retained jurisdiction so that at any time action might be taken to compel compliance with any detail of the settlement. The objects of the decree were to eliminate: (1) "the alleged evil of stock-yard ownership" with its control over purchases of live stock to the exclusion of outsiders"; (2) "the alleged terminal railway evil" with the discrimination made possible thereby against the interests of independent packers"; (3) "the alleged forcing out of independents"; (4) "the alleged misuse of cold storage warehouses"; (5) "the alleged evil of controlling important substitutes for meat," such as fish, vegetables, and so forth." The decree provides that the packers and their subsidiaries must begin immediately and, within two years, complete the sale of "all their holdings in public stock yards, stock-yard railroads and terminals, and their interests in market newspapers and cold-storage warehouses, and forever disassociate themselves from the retail business and food lines unrelated to meat packing." The packers were

TUNNELS. There were few notable tunnels under construction either for railway or rapid transit or for aqueduct purposes though a number of interesting projects were under discussion. Most notable perhaps was the vehicular tunnel at New York, though the Channel Tunnel from England to France and the tunnel to be built by Japan under the straits of Shimonoseki were actively discussed. At the Catskill Aqueduct (see **AQUEDUCTS**), the Shandakan tunnel was begun. Lack of new railway construction and improvement of course was responsible for inactivity in this field the world over and subway construction (see **RAPID TRANSIT**) was also restricted for similar reasons. Some of the more notable tunnel projects of 1919 are discussed in the following paragraphs.

HUDSON RIVER TUNNEL. Following legislative appropriations made in the spring of 1919, the States of New Jersey and New York in September entered into a formal agreement through their Inter-State Bridge and Tunnel Commissions to build and operate the vehicle tunnel under the Hudson River between Manhattan Island and Jersey City, which had been under discussion for several years previously. Authority already had been granted by Congress for the States of New York and New Jersey to agree together in the matter of the construction of the Hudson River Tunnel, as this permission was required under the Federal Constitution. The appropriation acts gave authority to the commissions to contract with each other for this purpose, and the details of the agreement were under discussion during the intervening time. The contract entered into protects either State in case of default by the other, there being no obligation to make further appropriations, and in the event of any default the other side may complete construction and collect tolls at both portals until the cost in default is paid. Taxes of either State must be collected from the toll income taken on its own side. The plan was to fix such tolls as would repay principal and interest within 20 years.

On July 1, 1919, the Engineering Department of the joint commissions was organized with Clifford M. Holland as chief engineer. Mr. Holland had had 13 years' experience in the planning and construction of tunnels under the East River and immediately proceeded to the preparation of preliminary plans and estimates for the consideration of the Board of Consulting Engineers, composed of Messrs. William J. Wilgus, John A. Bensel, William H. Burr, Edward A. Byrne, J. Vipond Davies and Henry W. Hodge. The geological conditions along the route of the tunnel and its approaches were studied during the year in view of an extensive series of borings, and studies were also instituted in regard to the ventilation of the tunnel, considering especially the exhaust gases of the motor vehicles.

It was estimated at the end of the year that the proposed tunnel would cost \$28,669,000 and would require three and a half years to build. Both the cost and the time were estimated on a minimum basis. When the tunnel was first discussed the cost was estimated at \$12,000,000 independent of approaches, but material and labor cost had risen in the interval at an extraordinary rate.

According to the preliminary plans prepared the interstate tunnel was to lie an average of 60 feet beneath the surface of the river at low

tide, which is 10 feet deeper than the requirements of the War Department. The tunnel was to be 5400 feet long, between shafts placed just inside of the pierhead lines. Part of the work was to comprise the building of modern piers to be constructed so as to protect the tubes from damage.

On the New York side the tunnel was to emerge at Canal Street. There were to be two plazas, one at Broome Street leading into a roadway connecting with the tunnel's mouth at Broome Street and forming the entrance. This will be the entrance. The exit was to be to a plaza on Vestry Street. Both exit and entrance will be approximately 1800 feet east of the river's edge. On the New Jersey side both the exit and entrance were to be located in the neighborhood of Twelfth and Provost Streets, Jersey City, almost in the centre of the area now occupied by the yards of the Delaware, Lackawanna & Western, the Pennsylvania and the Erie Railroads.

The type of tunnel recommended in the plans under preparation was a pair of twin cast-iron tubes with an external diameter of 29 feet, to accommodate two lines of traffic in each direction with a 20-foot roadway.

One tube approach would be located under Canal Street and the other under Spring Street, coming together at the waterfront, the tubes crossing the river together and dividing in Jersey City, so that one would go up Twelfth Street and the other Fourteenth Street.

The maximum adverse grade for westbound traffic is 3.5 per cent and for eastbound traffic 3.52 per cent, grades which compare with those used over the East River bridges. These adverse grades are comparatively short, extending only from the tunnel portal to the points where the tunnel roadway meets the street grade.

The clear headroom of the tunnel in these plans was fixed at 13 feet 6 inches and the width of roadway for two lines of traffic, allowing clearances for safe and convenient operation, was fixed at 20 feet, which corresponds very closely to the width of the roadways over the Williamsburg Bridge across the East River, New York City. These plans were to be formally presented and discussed early in 1920, so that construction could be undertaken speedily.

The New York commission consisted of General George R. Dyer, chairman; E. W. Bloomington, vice chairman; McDougall Hawkes, A. J. Shamberg, Grover A. Whalen, Frank M. Williams; Counsel Paul Windels and Secretary Morris M. Frohlich.

The New Jersey commission consisted of Weller H. Noyes, chairman; Samuel T. French, vice chairman; Thomas J. S. Barlow, Theodore Boettger, T. A. Adams, Palmer Campbell, Richard T. Collings, Daniel F. Hendrickson; Counsel Emerson Richards and Secretary Charles R. Bacon and Assistant Secretary E. Morgan Barradale.

PROPOSED COLORADO STATE RAILWAY TUNNELS. The construction of three long tunnels in Colorado to reduce present open-pass summit elevations of railways crossing the mountains was advocated by the State Railroad Commission in a report to Governor Shoup, and the State was urged to finance the undertaking as any private interest in such a plan in the near future was inconceivable. The three tunnels proposed were as follows: On the Denver & Salt Lake R. R. near James Peak, 6.4 miles long, at an elevation of 9100 feet; near Marshall Pass, 6 miles long

elevation 9500 feet; and a shorter tunnel near the Cumbres Pass. By such construction the present maximum grades of 3 per cent to 4 per cent could be reduced to 2 per cent.

In view of the time required in construction, the Commission recommended that work should be begun at once and prosecuted vigorously and without interruption, bonds being issued to provide for the construction of these tunnels. In order to do this it was proposed that an amendment to the State constitution to provide for such a bond issue should be submitted to the voters at the next election.

PITTSBURGH TUNNEL. In December, 1919, a contract for building the South Hills tunnel at Pittsburgh for Allegheny County was awarded. This work involved the driving and lining of two parallel 25-foot tunnels 35 feet apart, 5700 feet long, through shale rock, and two and one-half years' time is allowed for completion. The contract was awarded, as there was no indication that costs of labor and materials would be less for some time.

CHANNEL TUNNEL. A favorable report was rendered during the year by the Commission which was appointed by M. Clavelle, the Minister of Public Works in France, to study the questions involved in the building of the Channel Tunnel. M. Clavelle then authorized the French Submarine Railway Association which had obtained the contract for building the tunnel, to begin at once to make studies and experiments of the technical processes involved in carrying out the project. The Minister of Foreign Affairs is to consult also with the British government with a view to appointing a Franco-British Commission to conclude the necessary agreement for the tunnel. Late in the year Prime Minister Lloyd George in England made the important announcement that the British Cabinet had decided that there was no longer any political objection to the construction of the Channel Tunnel. He would not say that the military objection had also been removed, but the cabinet had asked for the considered views of the Admiralty, War Office and Air Force Staff, and after their reports had been received, they would reach a final decision of the matter.

SHIMONOSEKI STRAITS TUNNEL. One of the most interesting tunnel projects discussed in 1919 was announced by the Imperial Government Railways of Japan and involved building a tunnel under the Shimonoseki Strait. A general study of the geological formation of the sea bed in the strait and the drafting of the general plan of work in preparation for the actual undertaking of tunneling, was to require some two years, so that the real work of construction would not commence until 1921. The preliminary plans involved the sending of engineers and workmen to America and Europe to make a study of what has been achieved in these countries in the way of tunnel engineering. The line was to be seven miles long, one mile of which would be entirely under the sea. The approximate cost of the undertaking was estimated at about \$10,000,000, and the work was expected to be completed in 1928. See **AQUEDUCTS; RAPID TRANSIT.**

TURKESTAN. A division of Russia, comprising the provinces of Samarkand, Ferghana, Syr-Darya, and Semirychensk with a total population (Jan. 1, 1915), of 6,684,400 and a total area of 420,807 square miles. At the beginning

of 1918 Russian Turkestan was reported to have declared itself a republic. On Nov. 21, 1919, according to dispatches published at that time, the Bolsheviks were strong in the towns, and controlled the railway to Merv and the Caspian Sea, but were not strong throughout the country as a whole. Train robberies by Bolsheviks were reported on the Trans-Caspian railway, and the Reds were said to be drafting Turcomans and other Moslems by force. These events followed a period of vigorous propaganda, in which Kazim Bey, a Turk, who had accompanied the German Mission to Afghanistan in 1913 was said to have been especially active. He sought to win over Bokhara to a plan of drawing Persia into a Pan-Islam democratic union, but was driven out of the country. He thereupon threatened to use force against the Emir, who, it was said tore up a part of the railway in the neighborhood of his capital, as a measure of defense. Bolshevik activities were reported elsewhere in the Trans-Caspian district, and they were said to be threatening the route to Krasnovodsk on the Trans-Caspian railway near the sea. In Khiva, as well as in Bokhara, the people were said to be hostile to the Bolshevik doctrines.

TURKEY or the OTTOMAN EMPIRE. A country of Asia Minor bordering the eastern shore of the Mediterranean; its limits and political status were indeterminate during the year, being one of the subjects for adjustment at the Peace Conference.

AREA, POPULATION, ETC. Turkey in Europe after the Balkan wars had an area of 10,882 square miles and a population of 1,891,000. Turkey in Asia comprised Anatolia, Arabia, Syria, Palestine, Mesopotamia, and Kurdistan and certain islands of the Mediterranean. After 1913 the Turkish territory was diminished. Turkey in Europe was for the most part divided between the States of Bulgaria, Serbia, Greece and Montenegro and most of the remainder was formed into the independent State of Albania. Mesopotamia in 1919 was under British administration, and Syria and Palestine under British and French. In 1918-19 the Aegean islands passed into the possession of Greece and Italy and their final destination was the subject of consideration at the Peace Conference. The overlordship possessed by the Sultan over Cyprus and Egypt had come to an end during the war, the former being annexed to the British Empire (November, 1914), and the latter being declared a British protectorate (January, 1915). At the beginning of 1919 the total area was estimated at about 613,724 square miles and the total population at about 20,973,900. The population of the chief towns was estimated as follows: Constantinople, 1,000,000; Smyrna, 375,000; Damascus, 250,000; Aleppo, 250,000; Bagdad, 225,000. Smyrna in 1919 was occupied by the Greeks. Bagdad had been occupied by the British since Mar. 11, 1917. No later figures for education and production are available than those given in the preceding YEAR BOOK.

COMMERCE. The trade of Turkey in 1916-17 was as follows: Imports, £T22,105,304; exports, £T34,058,581. As Turkey was under the domination of Germany at that time by far the largest portion of her exports went to Germany and she received a greater quantity of imports from Germany and Austria-Hungary than from any

other country. Before the war England headed the list of importing countries. Conditions during the year 1919 were abnormal and marked by high prices, large production and speculation. In December the Turkish pound fell from 1.20 to 1.03 owing to the gold exports in payment of material received from the United States. At that time nearly one-half of the trade of Constantinople was with Russia and the rest with the Balkan States and with other parts of Turkey. The chief imports were as follows: Cotton, wool, linen, and silk textiles of every description; hosiery, boots and shoes, ready-made clothing, leather and leather goods, tinned goods of all kinds, sugar, flour, butter, margarine, and fats of all kinds, cocoa, chocolate, biscuits, tea, confectionery, cottonseed oil, mineral oils, and drugs; machinery of all kinds, including agricultural implements and machines, and mining tools and machinery, sewing machines, typewriters, automobiles, bicycles, and carriages, iron and steel rails, and iron, brass, and tin sheets, nails of all kinds, wire, iron tubing, cutlery, and general hardware, glassware and earthenware; coal and coke, heating, gas and electric appliances, portable constructions and houses, materials for construction of all kinds, timber, furniture, paper, cardboard, and stationery, rubber goods, including overshoes and raincoats, and candles, lamps, etc.

Among the chief items of export from Constantinople and the Near East were the following: Leaf tobacco; wool and mohair; rugs and carpets; flaxseed, olive oil, castor beans, and nuts, including walnuts; hides and skins; currants, sultana raisins, dried figs, and other dried fruit; opium; salt, and various other minerals.

RAILWAYS. On Nov. 1, 1914, the railway mileage of European and Asiatic Turkey exclusive of the new extension of Bagdad railway was for European Turkey 1046 and for Asiatic Turkey 2865. See **BAGDAD RAILWAY**.

FINANCE. The following table and list of the chief items of expenditures is taken from the *Statesman's Year Book* of 1919:

	1914-15 £ T	1915-16 £ T	1916-17 £ T	1917-18 £ T	1918-19 £ T
Revenue	31,921,163	26,836,438	25,612,572	23,584,165	33,965,698
Expenditure	34,007,619	35,657,545	39,724,720	53,304,511	51,762,761

The main items of expenditure in the budget for 1918-19 were: Finances, £T10,395,120; post-office, £T1,188,981; police, £T2,564,757; justice, £T1,068,141; education, £T1,072,537; commerce, £T1,582,891; army, £T6,044,101; navy, £T1,704,057. According to the report of Sir Adam Block early in 1919 the figures for the Turkish debt stood as follows:

	1914-15 £ T	1915-16 £ T	1916-17 £ T
Gross receipts	3,627,913	2,868,156	3,632,692
Expenditure	739,825	849,473	877,246
Net receipts	2,888,088	2,018,683	2,755,446
Surplus after service of unified debt...	730,713	138,692 (Deficit)	598,071

ARMY. Official figures giving the losses of the Turkish army during the war were published in February. The number of dead, wounded prisoners, and missing was placed at nearly 1,000,000, that is to say, 948,477, distributed as follows: Killed or dead from wounds or dis-

ease, 436,974; wounded, 407,772; prisoners and missing, 103,731.

GOVERNMENT. Sultan, Mohammed VI (born Jan. 12, 1861), succeeded to the throne July 3, 1918. Ministry as constituted in May, 1919: Grand Vizier and Minister of Foreign Affairs, Damad Ferid Pasha; Interior, Ali Kemal Pasha; Justice and Finance, Vassi Pasha; War, General Shevket Torgut; Marine, Avni Pasha; Public Instruction, Handi Pasha; Sheikh-ul-Islam, and Minister of Pious Foundations, Mustapha Sabri Effendi.

HISTORY

QUESTION OF CONTROL. Upon the opening of the Peace Conference the following terms were proposed by the president of the French Republic for the settlement with Turkey: Restitution and reparation to populations and individuals; re-arrangement of the map of Turkey in conformity to the will of the peoples inhabiting it; punishment of the guilty. There was much discussion during the year of the means of execution. In France and England various schemes for the distribution of responsibility were proposed. Many favored a plan that would make England sponsor for the Arabs, France for Syria, Greece for Smyrna, the United States for Armenia, and the League of Nations for Constantinople and the rest of the Turkish empire. It was pointed out that Greeks, Armenians, and Arabs ought not to be put back under the Turkish domination. Events following the armistice it was argued, had shown that the Turkish government was as unfit as ever to govern others or even to govern the Turks, having learned nothing from its defeat. The Allies had found it necessary to take control of the main branches of the administration at Constantinople and to invite the Greek army to occupy Smyrna and its environs. The terms of the secret treaty concluded early in the war between France and Great Britain and concerning Asia Minor were made public in January. By these France was to control Syria, Lebanon and

a portion of Armenia lying west of the Euphrates known as Armenia Minor; Great Britain was to direct Mesopotamia and portions of the Arabian peninsula; and Palestine was to be under international protection. (See **WAR OF THE NATIONS**.) At the close of February dispatches indicated an understanding between the Moscow government and certain elements in Turkey, where among the members of the Union and Progress party Bolshevism had made some converts. It was reported that the Enver Pasha was approaching at the head of a Bolshevik army. Disaffection was indicated among certain extreme Nationalists and Moslems.

CHANGE OF MINISTRY. Late in December, 1918, the Young Turks through their committee of Union and Progress tried to regain the power but the Sultan dissolved parliament, and the liberals succeeded in securing control. A new liberal ministry was formed under Prince Sabaheddin. There was another dissolution of parliament early in March. A new cabinet succeeded under Damad Ferid Pasha, Grand Vizier

and foreign minister (as noted above), and the Young Turk officials who were still in office were dismissed. A delegation headed by the Grand Vizier was now dispatched to the Peace Conference but the Allies refused to deal with it, saying they would deal later with Turkish affairs.

NATIONALIST MOVEMENT. The reports in the newspapers of conditions in Turkey during the war were confused and difficult to understand. There was evidence of a national movement extremely hostile to the government in Anatolia. It was said in the first place that the government had started the movement in order to protect the interests of Turkey, but it had got out of hand and fallen under the control of elements hostile to Constantinople. Upon the appointment of the Ferid ministry the Sultan issued a proclamation against the rebels, and placed himself squarely behind the ministry, which was unpopular on account of its insistence on remaining in power. In the region around Constantinople English troops were in occupation and the restoration of order was not difficult, but beyond the range of the railways which might be occupied by the troops of the Allies it was more difficult. The Grand Vizier Damad Ferid told the press that he was sure that the Anatolian movement would subside at once if the Peace Conference would recall to Paris the Ottoman delegation. This seemed doubtful because according to general opinion the Damad Ferid cabinet, after the failure at Paris and the Greek occupation of Smyrna, was powerless to defend the interests of the country against foreigners. It was reported at the end of October that serious disorders were taking place in several parts of the country, for example, in the neighborhood of Broussa where brigandage was a matter of daily occurrence and where conflicts between the bandits and the authorities were regularly taking place. It happened not infrequently that the police themselves went over to the bandits. Something of a Bolshevik spirit was said to be at the bottom of this brigandage. In Turkish Thrace also there were signs of revolt, and the religious authorities, both Greek Orthodox and Roman Catholic urged that the Allies should send troops into the region. The religious authorities at Tchataldja reported a number of atrocities, and bands of Turks armed with modern weapons were said to be firing upon the Christian houses at Malgara. At Constantinople there was much discussion and recrimination. There was talk of secret funds applied to the enrichment of the Young Turks, and of millions bestowed upon Talaat, Djemal, Enver and their allies. The former minister of the interior, Mohammed Ali Bey was accused of corruption, but on returning from Switzerland he explained the expenditure of the funds entrusted to him as in the interests of Turkish propaganda there. The deportation and massacre of Christians during the war was unceasingly discussed.

TURKEY AND THE POWERS. According to the Treaty with Germany the latter Power agreed to recognize and accept all arrangements which the allied and associated Powers should make with Turkey and in the article 22 of the Covenant of the League of Nations it was declared that certain communities formerly belonging to the Turkish Empire had reached the stage of development where their independence would be

recognized provisionally subject to advice and assistance by the mandatory power until they were able to stand alone. It was further said that the wishes of these communities must be the chief consideration in the choice of the mandatory. Travelers and students of the Eastern Question have criticized severely the policy of the Allies toward Turkey. One of the blunders of the Peace Conference they said was the failure to understand the Turks' point of view. The Powers had gone on with their policy of practically dismembering the Turkish empire without considering what the Turks themselves would do. When they found that the Turks were themselves a part of the problem they were at a loss as to what course to pursue. The conference between M. Clemenceau and Mr. Lloyd George at the close of the year took up matters which in the opinion of the critics should have been considered many months before. There had been a repeated demand that the United States should take part in the Near Eastern settlement by acting as mandatory for Armenia but there had been nothing in the policy pursued by England and France to encourage the United States to enter upon such a task. Both Powers had apparently blundered. England despite the principles of President Wilson was virtually occupying the territory of Arabia, Mesopotamia and Syria. The French were more or less in control of a small part of Syria. In respect to Syria the views of the two Powers were in conflict as is noted elsewhere. (See WAR OF THE NATIONS.) It was also stated by observers that Syria almost universally preferred English to French control. As to Cilicia the only question was whether it should be French or should be given to a free Armenia. In the secret understanding between Great Britain, France, and Italy, Southern Anatolia was to be given to Italy, exclusive of a certain portion which was to be given to Great Britain and France. At the close of the year, Italian troops were occupying the country as far north as Konieh; the western coast of Asia Minor was in the hands of the Greeks, and Armenia was demanding independence, and to this all the Powers had agreed in principle. Under these conditions the last hope of the Turks had disappeared, but there were signs that they would not submit to the complete dismemberment of the empire without making a desperate resistance. At the close of the year it was reported that the Turks were engaged in a formidable national movement in which they would be aided by their Turanian neighbors and others, including Kurds, Persians, Tartars, Tcherkessians, Afghans, Georgians and perhaps the Russian Bolsheviks. The new cabinet at Constantinople was friendly to the Young Turk movement whose leaders were Talaat, Enver and Djemal, all of whom were abroad seeking to form alliances—Djemal in Berlin, Talaat reported to be on his way to Moscow and Enver reported to be in the Caucasus stirring up the Tartars. Bolshevik agitators were reported to have been stirring up Afghanistan against England and there were rumors of disorder in Persia. In short it was predicted at the close of the year that Bolshevism would extend over all this region and that the Turkish alliance would be strengthened greatly by the influence of European Bolsheviks. This at least was what the Turks were

hoping for. In April, 1918, an organ of the Young Turk party had declared that it was their policy to penetrate Egypt, and Central Asia in order to open a road to Afghanistan and India and other Moslem countries. This would unite some 300,000,000 believers against the infidels. The belief in the Bolshevik adventure in the east was strong in certain quarters where the words of Trotzky implying a threat of eastern conquest were taken seriously. As an illustration of the extremes to which these views went, the following passage from an interview with Dr. W. D. P. Bliss, who had for many years been studying the problems of the Near East is of interest:

"There is a direct rail connection from Berlin through central Asia to Samarkand, and even beyond to Andijan, on the borders of China. All central Asia is Turanian. One may ride from the Bosphorus almost to Peking and talk some dialect of Turkish, or akin to Turkish, practically all the way. And Central Asia can supply Germany. In recent years Turkestan has been largely covered with cotton plantations. The grain and corn of Ukraina and central Asia could feed all eastern Europe and western Asia. The sheep in central Asia are said to number 200 per inhabitant. The Asiatic steppes are swarming with cattle. In the Caucasus, Ural, and Altai Mountains, and other regions, are coal, iron, copper, and other minerals, while the oil fields of Baku and elsewhere are well known. All of this is counted on by the clever Bolsheviks and the Young Turks. They at least know what they are doing."

The remedy proposed by the above writer as well as others in the press was that the Allies should give the Turks a fair chance in Western Asia Minor and that the United States should recognize an Armenian republic reaching across Eastern Asia Minor and give it the necessary aid. It was argued that the Armenians were strong enough to hold their own. In 1914 they had refused an offer of independence in return for the support of Turkey and the Central Powers. This refusal led to massacres and deportations. The Turks believed that this policy was a military necessity and that if they did not deport the Armenian the Armenian would attack them, perhaps with success. The Armenians were actually successful against the Turks in the Caucasus and this success was decisive. The German general commanding in Syria attributed the reverse in Palestine to the fact that the Turks, contrary to his orders, had insisted upon sending troops to fight the Armenians in the Caucasus. The Turkish commanders in the Caucasus said that if it had not been for Armenia the Turks would have conquered the Caucasus. It was argued that an Armenian army could maintain itself with comparatively little support from the Allies.

CABINET CRISIS. The prestige of the Damad Ferid ministry had been waning for some time past and its fall became certain after the Ottoman delegation to the Peace Conference returned to Constantinople, having failed to obtain satisfactory conditions from the Allies. Meanwhile members of the old committee of Union and Progress, who were figuring as Nationalists, had gathered together some remnants of the former army and claiming the mastery of Anatolia independently of the government of Constantinople. In the first week in October the cabinet was overthrown. At that time the whole of Asia Minor, according to the press, had practically thrown off the rule of Constantinople. The Nationalist forces under Mustapha Kemal, numbering according to some accounts 300,000 men, had captured Konieh and

their leaders set up a new government at Erzerum and called for a new national election which was to take place independently of the control of the Entente. Kemal sent an ultimatum to the government calling upon the ministry of Damad Ferid to resign. On October 6th it was announced that a new cabinet had been formed as follows: Grand Vizier, General Ali Riza Pasha; Minister of Foreign Affairs, Mustapha Rechid Pasha; Minister of War, Djemal Pasha; Minister of the Interior, Damad Sherif Pasha; Minister of Justice, Mustapha Bey; Minister of Public Works, Hamed Avouk Pasha; Minister of Agriculture, Hadi Pasha; Minister of Instruction, Said Bey. The Sultan declared that the programme of the new cabinet included the holding of elections, and the calling of parliament. It was believed that this meant the triumph of the Nationalist principles and that the government would take its stand on the maintenance of the Turkish empire. At this time the policy of the Allies which had produced this result was sharply criticized in the French press, where it was pointed out that ever since the armistice on Oct. 30, 1918, the Allies had steadily blundered. For example, British military and civil agents for a long time had possessed an influence completely overshadowing that of the French, and they bore the largest part of the responsibility. Instead of preparing an international control, they tried to secure themselves in privileged positions, and embarrassed the future action of the Allies. When the commissioners of other Powers were consulted the situation was already hopeless, and the first effect of the victory was lost. The Turks perceived once more that in the face of divided enemies they might hope anew for success. It would have been possible at the beginning of 1919, said the critics, to organize an effective system, but now it was too late. They proposed that the Allied Powers should henceforth follow a policy based on these principles: First, that the Turks are absolutely incapable of governing either themselves or other people, except by violent methods; second, that the true interest of all the Christian Powers was to come to an understanding with one another for the establishment of the collective control; third, that such a control was in the interest of the Turks themselves and of their friends. If the Christian Powers continued at their old game of intrigue, they would end by being the laughing-stock of the Turks, and Turkey would pass through a long period of confusion which would trouble the whole of Europe.

In the latter part of November Mustapha Kemal Pasha made the following proclamation in the name of the committee for the defense of the rights of Anatolia and Rumelia:

"The Entente Powers will pursue their project of depriving our nation of the fairest portion of its country. They are working to balance their interests by partitioning our country. The massacres and atrocities committed in the Aidin vilayet, which Greece was allowed to occupy in order to pave the way to a partition of Turkey, were identical with those now committed in the Adana vilayet occupied by the French, using the Armenians as their instrument. We protest with all our energy against the illegal acts committed up to the present by the Entente Powers and we hope that they will learn to cherish juster sentiments toward our nation. The result which will be brought about by the inhuman methods embarked upon by those Powers without consulting to listen to the legitimate voice of our nation may be very fatal. It would not be fatal only to a few countries, but possibly also to two worlds."

SITUATION AT THE END OF THE YEAR. The Nationalists were reported to be very desirous that the United States should assume the mandate for all of Turkey. At that time the Greeks were in occupation of Smyrna and the French of Syria. It was reported on December 12th that Enver Pasha had made himself dictator of Kurdistan but this report was not confirmed. The settlement of the Turkish question was one of the subjects under discussion in December in the conference between Mr. Lloyd George and Mr. Clemenceau. It was reported that the two governments were not in accord in respect to the city of Constantinople, the British wishing to take it completely out of the hands of the Turks, and the French wishing to leave it in their hands under the control of the Allies.

TURNER, CHARLES YARDLEY. Mural painter, died at Baltimore, Md., January 1. He was born at Baltimore, Nov. 25, 1850, and studied at the Art School of the Maryland Institute, and at the National Academy of Design. He was one of the founders and became the President of the Art Students' League in New York of which he was professor of drawing and painting, 1881-84. He was the director of color at the Buffalo Exposition of 1901.

TUSKEGEE NORMAL AND INDUSTRIAL INSTITUTE. A non-sectarian co-educational institution for negroes, located at Tuskegee Institute, Alabama. The enrollment for the summer session of 1919 was 637, and for the fall term, 972 girls and 878 boys. The faculty numbered 185. The endowment fund is \$2,279,777 and the income for the last fiscal year was \$468,146. The library contains about 24,000 volumes. Under the will of Mrs. Russell Sage, Tuskegee is to receive \$800,000. In 1919 a Boys' Trades Building was constructed, at a cost of \$226,000. The Institute was founded in 1881 by Booker T. Washington. Principal, Robert Russa Moton, LL.D.

TYPHUS AND TYPHOID FEVERS. The fact that typhus fever has occurred widely in various countries of Europe as a result of war conditions and could readily find its way to this country through ordinary travel routes, makes a review of this affection timely. In this connection it should be recalled that a century ago typhus fever included the typhoid fevers as well, as the distinction between the two was not demonstrated until long afterward. The term typhus fever was applied to a prolonged affection with continuous high temperatures and usually exhibiting a peculiar mental state characterized by stupor, whence the name, which is a Greek cognate of that Latin word. It was recognized that the affection was protean in character, constituting in its most severe form the highly epidemic and malignant famine fever, ship fever, jail fever, etc., etc., while it also appeared in a sporadic or moderately cumulative incidence known as abdominal typhus, a term still in use, but commonly replaced by the term typhoid fever. An enormous amount of observation and discussion was required before it could be shown that the two affections were quite distinct, having nothing in common. But although this distinction was generally recognized as early as 1840 it was not until the discovery of Eberth's bacillus in 1880 that an absolutely scientific demonstration of the dualism of the two diseases could be made, this organism being recognized as the exciting cause

of typhoid, while absent entirely from typhus.

At a later period in the history of epidemiology and bacteriology it was shown that clinical typhoid was itself a congeries of different infections, including two fevers known collectively as paratyphus. The existence of the latter helped to explain why some cases of clinical typhoid had a shorter duration than others and a milder course, for genuine typhoid shows considerable constancy to form. In regard to the typhoid group of fevers sanitation and protective vaccination have greatly diminished the menace of the disease which, however, is still responsible for a large amount of illness, death and detention from business throughout the country, largely due to contributory neglect by the public. Typhus fever is of the type which refuses to give up the secret of its causation to research, although the difficulty is not the lack of micro-organisms to accuse but rather in the particular one to choose, as at least four have been under observation for years. This state of affairs makes pertinent the query "may not typhus, like typhoid, be a merely clinical entity which can be realized by a number of causes?" The question is not only pertinent on general principles but already we have knowledge of a modified endemic typhus which practically does not destroy life and is not contagious. In its ordinary expression typhus is disseminated by body lice but apparently this is not the case with endemic typhus. The latter is known in New York as Brill's disease and in very exceptional cases it has been contagious or fatal. Endemic typhus doubtless exists in other large cities and other countries—for example non-contagious and mild typhus has been seen in Paris. Such cases may be seen in typhus epidemics and may occur sporadically in countries where epidemics have flourished. It is a question whether Brill's disease was originally brought to this country by Russian emigrants or is a survival of the days when the disease was epidemic in the city. Officially the last occurrence of typhus in New York was 1892. In 1895, cases diagnosticated as "false" typhus were seen in Riverside Hospital and the following year Brill saw the first cases of the disease which goes by his name.

Outside of the seaports where quarantine should readily exclude emigrants affected with the disease, the chief source of danger is Mexico, in which country true typhus is usually epidemic. On one occasion the disease was brought well into the interior by Mexican laborers, but was readily controlled and there seems to be little fear on the part of the border health authorities of Mexican typhus.

TYROL. See Tirol.

UGANDA PROTECTORATE. A British protectorate in East Africa. Total area, 109,119 square miles including 16,377 square miles of water. Total population Mar. 31, 1918, 3,361,117 composed chiefly of natives (who number 3,357,080). The Europeans numbered only 570. It is divided into five provinces, namely, the Eastern, the Rudolf, the Northern, the Western, and Buganda. Total imports (1916-17) £1,296,100; total exports, £1,076,904. In 1917-18 the exports were £784,673. At the beginning of 1919 the governor and commander-in-chief was Sir R. T. Coryndon.

UKRAINE. The name of the portion of Russia, inhabited by the Ukrainians, also known as

Little Russia, comprising chiefly the Russian provinces of Podolia, Volhynia, Kiev, Poltava, Chernygov, Ekaterinoslav, and Kharkov, together with parts of the adjoining provinces. There is a population of the Ukrainian race also in the adjacent Austro-Hungarian provinces, namely in eastern Galicia, in the north-western part of Bukovina, and in part of Hungary. The number of Ukrainians in Russia has been placed at about 3,000,000, in Austro-Hungary at 3,000,000, and in other countries at 1,000,000. For an account of the Ukrainian movement for independence see the preceding YEAR BOOKS. After the Russian revolution Ukraine adopted a constitution on Dec. 23, 1917, and the first government during the spring of the following year was under General Pavlov Skoropadsky, who was supported by the Germans. On Dec. 16, 1918 the government was overthrown and after several ministries had fallen a new ministry was chosen on Apr. 25, 1919 under M. Martos. The independence of Ukraine was acknowledged by the Allied Powers in March, 1919. See WAR OF THE NATIONS.

UNEMPLOYMENT. Because of the rapid demobilization of men from military service and because of the sharp drop in the demand for labor occasioned by the signing of the armistice, the problem of unemployment was one which governments had immediately to face.

A conference was held in Washington on Dec. 5, 1918, at which a plan of coöperation whereby the national and local machinery of the national welfare organizations was linked up with the United States Employment Service, was arranged. By this action, thousands of agencies such as the local units of the Council for National Defense, the Red Cross, the Knights of Columbus, and many other bodies were brought to the assistance of the federal employment service. By this means, congestion of labor was largely relieved.

In February, 1919, the United States Employment Service was administered through 748 employment offices, each state theoretically having a district office and the remaining offices being local branches. Thus, each office should cover an average of 4048 square miles, and the employment of 136,397 persons. The height of activity was reached in November, 1918, when the registration totaled 744,712; help wanted, 1,724,943; references to employment, 748,934; placements, 558,469. Following are the statistics for the 14 months, January, 1918, to February, 1919, when the Federal Employment Service was functioning, in comparison with 31 months from May, 1915 to December, 1917, when unemployment was dealt with by the Bureau of Immigration: help wanted, 10,164,000 in comparison with 718,012; registration, 5,322,509 compared with 619,870; references to employment, 4,906,556 in comparison with 557,320; placements, 3,776,750 compared with 445,899. The placement of women from January, 1918 to February, 1919, totals 594,440.

Another conference was held in Washington Apr. 23, 1919, with governors and representatives from the States invited. There were 60 conferees present. Resolutions were adopted after discussion as follows: the employment service should be made a permanent bureau of the Department of Labor, its director to be appointed by the President; this bureau shall es-

tablish and maintain a system, coördinating the same with the various State employment services; there shall be an annual appropriation for this bureau; States having employment services shall receive a bonus from the government to equalize the expenditure put into States having no service.

CANADA. In 1916, a "trade and labor branch" was created for the period of the war. Coöperating with the Imperial Munitions Board, and the Provincial Department of Agriculture, in the year ending Oct. 31, 1918, it placed 11,812 women and 23,217 men. In November, 1918, Canada had just organized a new means for the effective distribution of labor. But the armistice necessitated the reabsorption of three-quarters of a million men in a population of between seven and eight million. The Federal authorities augmented the original Employment Act, see NEW INTERNATIONAL YEAR BOOK 1918, and later, by an order in council, the sum of \$30,000 was added to the 1918-1919 appropriation, and for 1919-1920, a special allowance of \$150,000 was voted to be added to the original budget of \$100,000. Immediately, a conference was held, attended by representatives of the federal and provincial departments of labor. The service was rapidly expanded. By July 1st, there were 89 offices, of which 35 were in Ontario. Outlying towns have one-man bureaus, while the large cities have offices with staffs as large as necessary. Each district has its clearing house, and these districts coördinate together in filling the demand. Especial attention has been paid to the satisfactory placing of soldiers. To aid in the necessary redistribution, the railroads have offered a special rate of one cent a mile, with a minimum of \$4.

GREAT BRITAIN. The problem of demobilization and unemployment in England has been most successfully met by the government. On Nov. 25, 1918, the out-of-work donation scheme went into effect, whereby a person unemployed might receive a benefit, though obligated to accept a position if offered. The scale of benefits follows: 29s. per week for men, 25s. per week for women, 14s.6d. for boys, 12s.6d. for girls. Extra payments were made for dependents. A policy covers a civilian for six months; a person who was in military service, a year. A civilian is entitled to out-of-work donation for 13 weeks, a member of H.M.S., for 26 weeks.

On June 13th, only 376,735 or 15.3 per cent of those released from service, were unemployed. 2,077,486 having been reabsorbed into industry. Of the number unemployed who were absorbed. 518,539 were men, 900,558 were women, 100,374 boys, and 90,617 girls. The highest percentage of unemployment was—men 17.7 per cent, women 13.3 per cent, boys 7.5 per cent, girls 7.5 per cent. Policies issued November 25th to January 13th were: men 629,951, women 1,038,433, boys 108,528, girls 98,024, total 1,874,936. From this time, the number of unemployed steadily decreased as follows: July 4th, 579,025; August 1st, 553,482; August 29th, 478,084.

FRANCE. Figures have been compiled showing the decrease of the employment since the signing of the armistice. In 952 establishments, the employment of men prior to the signing of the armistice was 261,924 as compared with 194,648 on March 15th; of women 109,775 as compared with 48,768 on March 15th. This shows

a decrease in men employed of 25.6 per cent and of women employed of 55.6 per cent. The largest numerical decrease was in Paris, where the number of women employed in 241 establishments dropped from 47,980 to 20,705. In Bordeaux, the employment of women dropped 82.4 per cent.

GERMANY. At the end of the war, the employment service of Germany was unable to cope with the rapid demobilization. In January, 1919, the German Bureau of Labor Statistics reported that the general industrial situation was undergoing further deterioration. Violent labor disputes broke out throughout the country. Figures issued by the bureau show that the number of unemployed entitled to benefits were: January 1st, 500,000; February 1st, 999,369; March 1st, 1,076,368; March 30th, 1,053,854; April 19th, 914,959; April 30th, 829,758. The cause for such a large amount of unemployment is stated by the bureau as being: psychology of people, who are accustomed to lack of responsibility; violent wage disputes; growing distaste for work; scarcity of raw materials; difficulties of transport.

Shortly after the signing of the armistice, a National Office for Economic Demobilization was established. On Nov. 13, 1918, the new office issued an order making it obligatory on all municipalities to institute unemployment relief. The expense is borne: one-sixth by the municipality, two-sixths by the Federal State, three-sixths by the National Treasury. Relief is paid only to persons over 14 years of age, able and willing to work, who in consequence of the war, are indigent owing to unemployment. These persons are obligated to accept suitable work assigned to them by the employment exchange. The nature and amount of the relief is left to the communes. In Berlin, for each week day, the benefit is: for males over 17 years of age, 4 marks (95.2¢); males between 14 and 17, 3 marks (71.4¢); females over 17 years of age, 3 marks (71.4¢); females between 14 and 17, 2.5 marks (59.5¢). Additional payment is made for each dependent. Payment is made weekly. Benefits are larger in many other cities, those in Kiel and Hamburg being twice as large. By arrangement, free travel has been instituted for the unemployed. Special grants are made to agricultural laborers to relieve the great need for such workers. These steps, and the wearying of industrial warfare, have greatly alleviated conditions and the Federal Labor Ministry stated that within six months, the number of unemployed in Germany was reduced from 1,500,000 to about 500,000.

UNEMPLOYMENT INSURANCE. See SOCIAL INSURANCE.

UNION COLLEGE. A non-sectarian institution for the education of men, at Schenectady, N. Y. In the fall of 1919 there were 615 undergraduates and 44 graduate students. The faculty number 50, with five additional lecturers at regular times. Productive funds amount to \$1,189,381; the endowment is \$1,227,790, and the income for the year was \$177,288. There are 51,000 volumes in the library. Union College was founded in 1795. President, Charles Alexander Richmond, LL.D.

UNIONS, INDUSTRIAL. See INDUSTRIAL WORKERS OF THE WORLD.

UNITARIANS. Reports for 1919 show that there were in this denomination about 75,000

communicants, in the United States and Canada, with 516 ministers, and 474 churches. Sunday schools numbered 330, with 18,274 pupils, and 4881 officers and teachers. During the year much work was done among the Icelandic, Norwegian and Italian people in this country in adapting them to local conditions. A large number of them are Unitarian, and churches have been organized where services are conducted in the native language. Publication reports for 1919 show that the total production of tracts for the year has been as follows: A. U. A. series, 139,000; Memorable Sermons, 21,000; Religious Education Bulletins, 18,000; Social Service Bulletins, 12,000; Church Efficiency Pamphlets, 28,000; Religion for the New Age Series, 59,000; making a total of 277,000. The American Unitarian Association, with headquarters in Boston, is the governing body of this denomination. The Association attends to the activities both foreign and domestic. Churches as well as missionaries are maintained in Africa, Australia, Great Britain, New Zealand, Tasmania, Denmark, Norway, Sweden, Iceland, Japan, Palestine, India, Holland, Switzerland, Belgium, France, Bulgaria, Egypt, Germany, Italy, Jamaica, Russia, China, and Brazil. Divinity schools are maintained at Cambridge, Mass., Meadville, Pa., and Berkeley, Cal. Besides *Word and Work*, there are two other periodicals, the *Christian Register* and the *Beacon*. Rev. Samuel A. Eliot is president of the association, and Rev. Lewis C. Cornish is secretary.

UNITED BRETHREN IN CHRIST. There are two branches of this denomination, the Church of the United Brethren in Christ, and the Church of the United Brethren in Christ (Old Constitution). The denomination was found in 1768 by Phillip W. Otterbein, a missionary of the German Reformed Church, and reorganized in 1800.

The Church of the United Brethren in Christ conducts a general conference quadrennially, and 40 annual conferences. In 1919 there were: 347,981 church members; 2403 ministers; 3498 churches; 3223 Sunday Schools with 410,149 pupils; 1219 parsonages; 2367 Young People's Societies with a membership of 89,562. The value of church houses totaled \$15,433,558.23; parsonages, \$2,756,396.27; and contributions for all purposes during the year amounted to \$4,530,352.12. Seven colleges and theological seminaries are maintained, including Otterbein University at Westerville, Ohio. The principal periodicals are the *Religious Telescope* and the *Watchword*, published in Dayton, Ohio. A big drive to strengthen the church is to be conducted during 1920 under the name of the *United Enlistment Movement*.

The Church of the United Brethren in Christ (Old Constitution) had in 1919 about 20,000 communicants. A general conference is conducted quadrennially, and 23 annual conferences, including one in Canada. Three colleges are maintained, and the principal periodical is the *Christian Conservator* published in Ubee, Ind.

UNITED KINGDOM. See GREAT BRITAIN.
UNITED PRESBYTERIAN CHURCH OF NORTH AMERICA. The sixty-first general assembly of this denomination was held in Pittsburgh in May, 1919. A "New World Movement" was inaugurated to raise \$10,000,000 to endow the educational and missionary work here and

abroad; the Inter-church World Movement was endorsed; and a committee was appointed to prepare a Revised Statement of Faith. Reports presented showed the following figures: 963 congregations; 980 ministers; 155,994 communicants; 550 parsonages; 840 Young People's Societies, and 962 Sunday Schools. Missionary societies numbered 1420, conducting work in Egypt and India. Contributions to this work totaled \$1,350,342, while \$356,820 was donated to benevolences outside the denomination. For purposes of administration the presbyteries are divided into 11 synods. The church is the strongest in the Middle West. Dr. W. M. Anderson is moderator of the church.

UNITED STATES DEPARTMENT OF AGRICULTURE. See AGRICULTURE, UNITED STATES DEPARTMENT OF.

UNITED STATES EMPLOYMENT SERVICE. See UNEMPLOYMENT.

UNITED STATES. POPULATION. The population of the United States on April 15, 1910, the year in which the last census was taken, was 91,972,206. The estimated population on July 1, 1917, was 103,635,306; Jan. 1, 1918, 104,444,303; July 1, 1918, 105,253,300; Jan. 1, 1919, 106,062,297; and on July 1, 1919, 106,871,294. Iowa, again, is the only State that shows a decrease in population. The 1910 census figures showed that her population had not increased over that of 1900. The chief reason for this was the fact that practically all the usable land of the State is already under cultivation, and as there is no further room for expansion, many farmers have moved to adjoining States or to Canada, where land that is available is more plentiful. The population of the several States and territorial possessions will be found in an appropriate paragraph in the articles dealing with separate states and territories.

AGRICULTURE. The detailed article on AGRICULTURE covers all the general statistics for agricultural production in the United States and its dependencies. Articles dealing with the individual States and territories contain paragraphs on *Agriculture*, which give the acreage, production, and value of the more important crops in 1919. Special articles are carried on various crops such as WHEAT, RYE, BARLEY, CORN, HAY, etc. See also, in connection with agriculture in the United States, AGRICULTURAL EDUCATION; AGRICULTURAL EXPERIMENT STATIONS; AGRICUL-

TURAL EXTENSION WORK; AGRICULTURAL LEGISLATION; DAIRYING; FOOD AND NUTRITION; HORTICULTURE; LIQUORS; LIVE STOCK; UNITED STATES DEPARTMENT OF AGRICULTURE.

MANUFACTURES. All the leading manufacturing industries in the United States are treated under separate titles such as BOOTS AND SHOES; COTTON; IRON AND STEEL; PAPER; RUBBER; SILK; TEXTILE INDUSTRY, etc.

MINERAL PRODUCTION. For the table giving the mineral production in the United States in 1918 and 1919 see the article on MINERAL PRODUCTION. State articles also contain paragraphs on *Mineral Production* where there were any mining activities of note. Separate articles appear on nearly all the more important minerals mined in the United States. In this connection see such articles as COPPER; GOLD; IRON AND STEEL; LEAD; PLATINUM; SILVER, etc.

EDUCATION. For information relating to educational matters see the articles on EDUCATION IN THE UNITED STATES, and UNIVERSITIES AND COLLEGES. Under separate headings will be found statistical articles dealing with the most important universities and colleges in the United States, such as HARVARD, YALE, PRINCETON, etc.

RELIGION. Statistics and other material relating to the various religious denominations in the United States will be found under separate titles such as PRESBYTERIAN CHURCH; PROTESTANT EPISCOPAL CHURCH; ROMAN CATHOLIC CHURCH; UNITARIANS, etc.

FOREIGN COMMERCE. The total foreign commerce of the United States for the year ending June 30, 1919, was \$10,320,960,839, a record-breaking year. The value of the foreign and domestic imports in 1919 were \$3,095,876,582, as compared with \$2,945,655,403 in 1918. The value of the exports in 1919 was \$7,225,084,257 as compared with \$5,919,711,371 in 1918. This figure for 1919 was almost \$2,000,000,000 above that of 1917 which was the greatest year the United States had ever experienced in its history. Imports from Europe showed a falling off in 1919, while those from North and South America, Asia and Oceania, and Africa showed increases. Our exports to all parts of the world increased in 1919, those to Asia and Oceania showing the largest increase, over \$200,000,000. The following table shows the value of imports and exports of foreign and domestic merchandise by countries:

IMPORTS AND EXPORTS OF DOMESTIC AND FOREIGN MERCHANDISE

BY COUNTRIES	Imports		Exports	
	1918	1919	1918	1919
EUROPE				
Austria-Hungary	\$12,766	\$308,700	.....	\$19,441,603
Azores and Madeira Islands	1,514,054	1,553,773	.....	353,828
Belgium	80,053	647,869	95,390,695	322,940,837
Bulgaria	8,569	78,971	.....	1,281,036
Denmark	1,022,397	2,294,048	4,969,542	93,167,530
Finland	2,179	309,053	68,360	9,509,167
France	75,638,078	62,693,315	883,734,921	976,696,797
Germany	64,094	944,981	.....	8,843,882
Gibraltar	2,212	13,912	6,488,018	39,979,138
Greece	18,481,432	22,876,531	2,573,882	22,908,250
Iceland and Faroe Islands	777,663	905,774	2,014,288	3,884,861
Italy	30,014,349	21,578,527	477,898,774	496,174,726
Malta, Gozo, etc.	4,171	3,656	147,785	1,374,931
Netherlands	16,396,633	30,652,531	6,381,964	103,801,757
Norway	3,235,020	3,219,245	25,216,242	101,641,460
Portugal	5,080,638	4,447,728	21,681,537	21,975,728
Rumania .....	.....	.....	310,774	1,050,451
Russia in Europe	15,146,826	2,927,434	116,705,346	11,390,318
Serbia, Montenegro, and Albania .....	.....	.....	17,497	2,696,876
Spain	24,565,565	30,979,183	67,163,288	98,931,632
Sweden	10,636,354	5,820,070	4,122,550	78,119,187
Switzerland	18,862,990	18,648,788	21,246,078	63,223,093
Turkey in Europe .....	.....	4,966,558	.....	8,017,876

IMPORTS AND EXPORTS OF DOMESTIC AND FOREIGN MERCHANDISE (Continued)

BY COUNTRIES	Imports		Exports	
	1918	1919	1918	1919
United Kingdom:				
England	150,403,714	129,345,899	1,849,341,528	2,029,996,069
Scotland	18,792,315	15,303,866	136,084,411	93,847,767
Ireland	20,886,427	12,457,813	10,487,358	23,648,405
Total United Kingdom.....	\$190,082,456	\$157,107,578	\$1,995,868,297	\$2,147,412,241
Total Europe	\$411,578,494	\$372,953,593	\$3,732,174,352	\$4,634,816,841
NORTH AMERICA				
Bermuda	704,540	1,475,954	2,279,606	1,977,170
British Honduras	2,861,358	2,729,655	2,420,184	2,307,804
Canada	434,254,567	468,954,818	778,490,022	818,728,031
Central American States:				
Costa Rica	7,615,482	8,222,108	1,903,224	4,175,646
Guatemala	7,822,960	11,115,721	5,563,493	5,946,331
Honduras	5,437,809	6,259,412	4,618,129	6,189,218
Nicaragua	4,590,037	4,596,303	4,377,688	5,519,137
Panama	7,845,390	8,301,179	23,641,116	21,262,539
Salvador	6,870,432	5,273,599	3,479,332	5,038,229
Total Cent. American States	\$40,182,110	\$43,768,322	\$43,582,982	\$48,131,130
Greenland	218,513	97,500	13,192	7,730
Mexico	140,659,542	157,693,451	107,077,033	119,962,982
Miquelon, Langley, etc.	3,191	40	262,327	373,581
Newfoundland and Labrador	6,218,304	6,032,781	9,656,144	14,545,065
West Indies:				
British West Indies—				
Barbados	685,102	539,158	2,701,156	3,752,541
Jamaica	3,282,982	3,377,210	7,834,096	7,579,635
Trinidad and Tobago	7,144,415	4,964,791	6,999,946	7,041,495
Other British	3,009,956	2,801,621	5,389,838	4,459,773
Total British West Indies..	\$14,122,455	\$11,182,780	\$22,925,036	\$22,833,444
Cuba	264,024,006	337,654,142	235,469,608	229,545,706
Danish West Indies (Virgin Isl- ands of the U. S.)	1,542,222	1,380,888	1,807,344	1,754,028
Dominican Republic	8,061,412	9,801,954	16,011,690	15,578,663
Dutch West Indies	1,058,622	2,240,746	1,622,796	1,424,440
French West Indies	122,960	61,128	6,381,127	7,614,692
Haiti	4,815,544	9,496,037	8,359,922	12,152,876
Total West Indies	\$293,745,221	\$371,817,675	\$292,577,523	\$290,903,849
Total North America	\$918,347,346	\$1,052,570,196	\$1,236,359,013	\$1,291,932,342
SOUTH AMERICA				
Argentina	195,633,348	166,061,539	109,373,150	138,831,832
Bolivia	122,917	700,253	3,581,395	6,731,916
Brazil	113,511,954	125,283,489	66,270,046	93,294,275
Chile	141,075,704	135,602,542	63,529,124	70,288,581
Colombia	25,975,988	28,267,604	10,994,199	13,441,256
Ecuador	10,887,968	9,009,005	4,924,544	5,017,638
Falkland Islands	400,000	.....	305,009	81,493
Guiana:				
British	364,002	310,863	5,266,778	5,921,229
Dutch	972,395	868,064	982,407	2,087,116
French	4,991	16,778	761,906	1,270,616
Paraguay	69,797	363,159	670,766	734,379
Peru	41,580,773	34,835,636	22,011,583	26,149,900
Uruguay	23,530,682	47,323,263	18,064,880	27,775,692
Venezuela	13,287,738	19,732,709	7,823,007	9,275,680
Total South America.....	\$567,418,257	\$568,374,904	\$314,558,794	\$400,901,601
ASIA				
Aden	1,516,605	2,381,281	257,764	326,313
China	116,644,981	105,762,859	43,476,623	82,992,495
China Leased Territory:				
British .....	.....	.....	21,346	.....
French	12,417	1,640	333,950	7,720
German	64,265	189,746	23,112	87,606
Japanese	24,055,680	22,365,206	5,642,417	9,408,291
Total China	\$140,777,343	\$128,319,451	\$49,497,448	\$92,496,112
Chosen (Korea)	10,082	298,973	1,068,735	3,411,371
East Indies:				
British—				
British India	105,277,743	125,471,468	42,395,622	50,501,740
Straits Settlements	159,188,127	137,576,918	8,810,297	12,200,452
Other British	32,140,262	24,327,632	1,087,024	1,570,695
Total British East Indies...	\$296,606,132	\$287,376,018	\$52,292,943	\$64,272,887

IMPORTS AND EXPORTS OF DOMESTIC AND FOREIGN MERCHANDISE (Continued)

BY COUNTRIES		Imports		Exports	
	1918	1919	1918	1919	
Dutch East Indies	79,314,233	71,036,606	19,777,504	44,845,561	
French East Indies	332	492,950	316,790	1,368,923	
Portuguese East Indies	404		8,663	10,430	
Hongkong	18,086,274	26,066,355	20,275,638	24,721,067	
Japan	284,945,439	303,998,041	267,641,212	326,462,269	
Persia	888,084	447,875	119,714	644,960	
Russia in Asia	3,649,663	2,736,841	34,718,541	41,455,457	
Siam	156,981	178,231	1,148,484	2,113,851	
Turkey in Asia	222,039	7,567,652	305,557	1,794,711	
Other Asia	20,031	13,927	274	636	
Total Asia	\$826,193,642	\$830,904,001	\$447,429,267	\$603,924,548	
OCEANIA					
British Oceania:					
Australia	49,471,485	74,643,999	66,581,501	109,034,686	
New Zealand	11,836,778	24,750,634	17,378,678	27,999,468	
Other British	3,029,439	4,776,025	751,635	786,806	
Total British Oceania	\$64,337,702	\$104,170,658	\$84,711,814	\$137,820,960	
French Oceania	2,834,673	1,878,593	1,266,965	1,225,897	
German Oceania	931,920	1,468,118	487,321	273,760	
Philippine Islands	78,101,412	82,490,760	48,425,088	69,030,876	
Total Oceania	\$146,205,707	\$190,008,129	\$134,891,188	\$208,351,493	
AFRICA					
Abyssinia			2,000		
Belgian Congo	14,809	865,053	335,970	2,731,839	
British Africa:					
West	16,761,226	14,598,028	8,029,263	9,120,488	
South	33,295,835	36,888,174	35,199,720	44,841,871	
East	440,394	863,370	1,518,891	1,382,091	
Total British Africa	\$50,497,455	\$51,849,567	\$44,747,874	\$55,314,450	
Canary Islands	159,066	164,341	226,232	1,088,036	
Egypt	20,907,958	23,934,571	3,149,994	10,293,189	
French Africa	899,833	1,188,922	2,102,443	7,895,308	
German Africa	58,117	49,211	6,842	5,424	
Italian Africa	207,572	378,804	421	137,577	
Liberia	35,594	225,163	151,270	333,849	
Madagascar	25,298	26,979	149,344	539,656	
Morocco	178,421	304,244	309,814	1,859,782	
Portuguese Africa	2,927,834	2,038,904	3,099,287	4,874,177	
Spanish Africa			17,266	54,145	
Total Africa	\$75,911,957	\$81,065,759	\$54,298,757	\$85,157,432	
Grand total	\$2,945,655,403	\$3,095,876,582	\$5,919,711,371	\$7,225,084,257	

CHIEF ARTICLES OF IMPORT, 1918-1919

Articles	1918	1919
Animals	\$21,958,378	\$40,924,766
Art works	10,365,813	6,947,363
Breadstuffs	98,135,220	47,860,560
Chemicals, drugs, dyes, etc.	151,832,065	150,225,186
Cocoa	41,277,479	35,953,990
Coffee	103,058,536	143,089,619
Copper, manufactures of.	89,358,534	84,931,967
Cotton, manufactures of.	44,751,181	34,762,723
Earthen, stone and china ware	6,824,612	6,498,081
Fibres:		
Unmanufactured	109,042,490	103,872,080
Manufactured	92,530,957	98,924,770
Fish	26,190,515	28,058,506
Fruits and nuts	77,257,090	68,332,364
Furs, undressed	35,679,554	37,965,713
India rubber, gutta-percha, unmanufactured	207,562,458	181,837,031
Iron and steel	25,071,077	24,306,839
Leather and manufactures of	22,608,851	15,423,184
Meat and dairy products.	38,866,771	60,445,083
Oils	117,928,119	144,680,480
Paper	42,955,817	46,551,731
Precious stones	31,951,630	52,367,057
Seeds	50,841,623	35,212,664
Silk:		
Unmanufactured	190,624,766	217,517,484
Manufactured	30,899,004	29,349,198
Spirits, wines, and malt liquors	11,655,093	2,119,422
Sugar	237,015,371	309,403,314
Tea	30,889,030	24,390,722

Articles	1918	1919
Tin in bars, blocks, or pigs	74,543,006	65,285,801
Vegetables	30,175,769	33,687,305
Wood and manufactures of	95,714,268	92,289,532
Wool:		
Unmanufactured	198,545,911	224,410,062
Manufactured	27,476,798	13,279,481

CHIEF ARTICLES OF EXPORT, 1918-1919

Agricultural implements.	37,076,911	42,662,724
Animals	21,733,594	10,718,851
Brass	61,443,993	21,149,416
Breadstuffs	633,239,856	954,779,894
Cars, automobiles, other vehicles	157,176,948	198,191,860
Chemicals, drugs, dyes, and medicines	180,318,954	148,051,019
Coal:		
Anthracite	29,844,947	30,928,278
Bituminous	81,980,218	76,061,233
Copper and manufactures of, except ore	268,982,821	144,349,605
Cotton:		
Unmanufactured	665,024,655	863,161,409
Manufactured	169,378,223	232,680,723
Electrical machinery	54,546,961	80,712,310
Explosives	373,890,863	122,730,877
Fish	30,749,413	37,199,828
Fruits and nuts	34,470,678	71,292,813
India rubber, manufactures of	33,343,181	43,856,588

ENTERED				CLEARED			
<i>Countries from which entered</i>	<i>American</i>	<i>1918 Foreign</i>	<i>Total</i>	<i>American</i>	<i>1919 Foreign</i>	<i>Total</i>	
Europe	1,895,244	11,749,854	13,145,098	1,625,950	13,292,254	14,918,204	
North America	16,897,514	10,733,515	27,131,029	16,667,057	8,918,262	25,585,319	
South America	1,034,683	1,434,033	2,468,716	924,998	1,197,974	2,122,972	
Asia	181,631	1,607,158	1,788,789	155,775	1,857,758	1,513,533	
Oceania	244,482	327,929	572,411	277,029	269,594	546,623	
Africa	29,976	319,918	349,894	43,203	223,763	266,966	
Europe	1,671,081	12,593,205	14,264,386	2,544,991	13,895,866	16,440,857	
North America	16,374,952	10,806,669	27,181,621	16,879,913	8,954,626	25,852,539	
South America	823,354	1,414,622	2,237,976	1,290,248	1,415,117	2,705,365	
Asia	122,453	1,427,754	1,550,207	301,382	1,520,118	1,821,450	
Oceania	164,933	379,310	544,243	193,216	515,332	708,548	
Africa	49,460	186,189	235,649	99,034	294,937	393,971	

<i>Articles</i>	<i>1918</i>	<i>1919</i>
Iron and steel, manufactures of, not including ore	1,124,999,211	1,064,974,299
Leather and manufactures of	100,880,843	182,908,949
Meat and dairy products	679,835,794	1,167,850,576
Mineral oils	298,829,051	344,613,109
Paper	50,031,686	84,078,264
Tobacco:		
Unmanufactured	69,674,731	189,896,796
Manufactured	21,713,571	35,804,498
Wood and manufactures of	82,043,407	104,559,396
Zinc, except ore and dross	31,517,399	24,569,818

SHIPPING. The table at the top of the page shows the tonnage of vessels (net tons) entered and cleared in the foreign trade in 1918 and 1919.

TERRITORIAL COMMERCE. The table at the bottom of the page shows the commerce between the United States and her noncontiguous territories for the two twelvemonth periods ending June, 1918, and June, 1919:

CONDITION OF THE TREASURY. The following table shows the condition of the treasury at the close of the fiscal year, June 30, 1919:

CONDITION OF THE TREASURY JUNE 30, 1919

The public debt of the United States at the close of the fiscal year 1919 is, in detail, as follows:

Interest-bearing debt:	
Loan of 1925, 4 per cent.....	\$118,489,900.00
Consols of 1930, 2 per cent.....	599,724,050.00
Panama Canal loan, 2 per cent..	74,901,580.00
Panama Canal loan, 3 per cent..	50,000,000.00
Postal savings bonds, 2½ per cent	11,349,960.00
Conversion bonds, 3 per cent....	28,894,500.00
Certificates of indebtedness.....	3,624,983,490.00
War savings certificates.....	953,997,434.77
First Liberty loan, 3½ per cent..	1,410,071,600.00
First Liberty loan converted, 4 per cent	167,792,750.00
First Liberty loan converted, 4½ per cent	403,440,100.00
First Liberty loan second converted, 4½ per cent.....	3,492,050.00
Second Liberty loan, 4 per cent..	704,204,350.00
Second Liberty loan converted, 4½ per cent	2,862,252,250.00
Third Liberty loan, 4½ per cent..	3,958,552,700.00
Fourth Liberty loan, 4½ per cent	6,794,504,587.00
Victory Liberty loan, 3½ and 4½ per cent	3,467,844,971.77
	\$25,234,496,273.54

Debt on which interest has ceased:	
Funded loan of 1891.....	20,800.00
Loan of 1904.....	13,050.00
Funded loan of 1907.....	407,350.00
Loan of 1908-1918.....	936,000.00
Refunding certificates.....	10,840.00
Old debt.....	900,330.26
Certificates of indebtedness, matured	8,821,000.00
	\$11,109,370.26
Debt bearing no interest:	
United States notes (greenbacks)	346,681,016.00
Bank notes, redemption account..	35,830,457.00
Old demand notes.....	53,012.50
Fractional currency.....	6,843,314.82
	\$389,407,800.32

Total interest and non-interest-bearing debt, exclusive of certificates and notes offset by coin and silver bullion

ASSETS

Cash in the Treasury June 30, 1919

Reserve fund:	
Gold coin and bullion.....	\$152,979,025.63
Trust funds:	
Gold coin and bullion.....	735,779,491.00
Silver dollars.....	169,148,295.00
Silver dollars of 1890.....	1,745,161.00
	\$906,672,947.00
Gold settlement fund, Federal Reserve Board:	
Gold coin and bullion.....	1,416,086,099.10
General fund:	
In Treasury offices—	
Gold coin	\$211,596,388.87
Standard silver dollars.....	56,497,779.00
United States notes.....	13,818,465.00
Federal reserve notes.....	44,227,987.50
Federal reserve bank notes....	24,421,249.50
National bank notes.....	47,161,186.43
Certified checks on banks.....	155,953.84
Subsidiary silver coin.....	10,983,939.20
Minor coin.....	892,802.67
Silver bullion (at cost).....	16,423,918.22
Unclassified (unassorted currency, etc.)	3,490,532.19
Public debt paid, awaiting reimbursement	425,940.50
	\$430,096,142.92
In Federal land banks.....	500,000.00
In Federal reserve banks.....	55,300,485.16
In transit.....	30,172,896.09
	\$85,473,381.25

<i>Non-contiguous territories</i>	<i>Shipments from U. S.</i>	<i>Shipments to U. S.</i>
<i>Domestic and foreign merchandise</i>	<i>1918</i>	<i>1919</i>
Alaska	\$44,280,075	\$35,544,034
Hawaii	43,646,515	43,572,794
Porto Rico	58,945,758	57,898,085
Philippine Islands	48,425,088	69,080,876
Guam	156,581	271,000
American Samoa	263,142	138,115
Grand total	\$195,717,159	\$206,449,904
		\$294,605,402
		\$318,592,674

In special depositories—	
Account of sales of certificates of indebtedness	\$905,411,514.76
In national-bank depositories—	
To credit of Treasurer of the United States	41,123,406.30
To credit of other government officers	11,276,533.88
In transit	9,148,927.09
	\$61,548,867.27
In treasury of Philippine Islands—	
To credit of Treasurer of the United States	7,758,105.57
To credit of other government officers	1,555,333.91
	\$9,313,439.48
In foreign depositories—	
To credit of Treasurer of the United States	22,885,165.93
	\$1,515,228,511.61

LIABILITIES

Deduct current liabilities—	
National-bank note 5 per cent fund	\$22,473,804.75
Less notes in process of redemption	22,473,804.75
Treasurer's checks outstanding	605,856.76
Post Office Department balance	17,051,943.10
Board of trustees, Postal Savings System balance	7,743,397.88
Balance to credit of postmasters, clerks of court, etc.	21,482,001.63
Undistributed assets of insolvent national banks	1,236,360.25
Deposits for—	
Redemption of Federal reserve notes (5 per cent fund)	205,230,742.20
Redemption of Federal reserve bank notes (5 per cent fund)	9,534,850.00
Retirement of additional circulating notes, act of May 30, 1908	275,100.00
Miscellaneous redemption accounts	25,903,324.53
	\$289,063,576.35

BALANCE

Balance in the Treasury, June 30, 1919, as per Financial Statement of the United States Government	\$1,226,164,935.26
Settlement warrants, coupons, and checks outstanding—	
Treasury warrants	7,199,695.03
Matured interest obligations	80,145,012.72
Disbursing officers' checks	136,088,185.51
	\$223,432,893.26
Balance in the Treasury, June 30, 1919, free of current obligations ..	
	\$1,002,732,042.00

RECEIPTS AND DISBURSEMENTS. The following table shows the receipts and disbursements from April 6, 1917, to Oct. 31, 1919:

RECEIPTS	
Net balance in the general fund April 5, 1917	\$92,317,710.27
Receipts, exclusive of principal of public debt, April 6, 1917, to Oct. 31, 1919	11,280,264,442.60
Public debt receipts, April 6, 1917, to Oct. 31, 1919	55,234,272,754.36
	\$66,606,854,907.23

ARMY AND NAVY. The army and navy are treated under various subjects, such as AERONAUTICS; MILITARY PROGRESS; NAVAL PROGRESS; SHIPBUILDING; SHIPPING; WAR OF THE NATIONS, etc.

POST OFFICE. The revenues of the Postal Service for the fiscal year ended June 30, 1919, as reported by the auditor for the Post Office Department, including the revenues from the money-order and postal savings business, and the increase in postage derived from the 3-cent rate on letter mail and the 2-cent rate on postal cards, amounted to \$436,239,126.20. The act of Congress increasing the postage rates became effective on Nov. 2, 1917, and expired by limitation on June 30, 1919. The increase in the rates was virtually a war tax, and has been so treated in compiling statistics for comparative purposes. The collections under the act during the period in which it was in force were estimated at \$115,892,000, and were turned over to the Secretary of the Treasury monthly as they accrued, in the manner prescribed by the act. The ordinary postal revenues for the fiscal year 1919, after deducting the estimated collections for increase in postage, amounted to \$364,847,126.20. For comparative purposes this sum represents the normal revenues of the Postal Service, and shows an increase over the previous year of \$20,371,163, or 5.91 per cent. The expenditures for the year were \$362,497,635, an increase over the preceding year of \$37,663,907, or 11.59 per cent. The revenues therefore exceeded the expenditures by \$2,349,490. After deducting losses of postal funds by fire, burglary, and other causes, amounting to \$6638, the accounts as closed for the year show a surplus of \$2,342,851.

As stated in the last annual report, the volume of mail handled during the fiscal year ended June 30, 1918, exceeded that of any other like period in the history of the department, and this condition was not materially changed during the fiscal year 1919. The exigencies of war imperatively demanded that scrupulous care be exercised by every branch of the government service in conserving revenues, hence it was not possible to extend postal facilities as would have been done in normal times; but with the restoration of business from war to a peace basis the country is experiencing an era of the greatest industrial development and prosperity in its history, which naturally is reflected in the Postal Service and indicates that there has not been, by reason of the signing of the armistice, any curtailment in the responsibilities and demands imposed upon it.

The department continued during the year its assistance and cooperation to other branches of the government, utilizing the extensive organization and personnel of the Postal Service in the execution of the numerous details of the government's war programme and war activities.

DISBURSEMENTS	
Disbursements, exclusive of principal of public debt, April 6, 1917, to Oct. 31, 1919	\$35,413,111,205.26
Public debt disbursements, April 6, 1917, to Oct. 31, 1919	30,305,711,180.75
Net balance in the general fund Oct. 31, 1919	888,032,521.22
	\$66,606,854,907.23

Some of the most unusual, highly important, and extraordinary activities not connected with the mail service were placed upon the postal establishment. They may be briefly stated as follows: The establishment and maintenance of mail serv-

ice for the military forces in the United States and abroad; the operation of the telegraph and telephone systems; the transportation and delivery of tens of thousands of tons of mail for various war agencies; the administration of the provisions of the espionage and trading-with-the-enemy acts, the purposes of which were to prevent the use of the mails in disseminating matter calculated to incite disloyalty and sedition against the United States government during the war; the registration of enemy aliens and the listing of enemy-owned property by postmasters; the reporting of disloyal utterances; the use of post-office inspectors in furnishing information to the intelligence service of the army and navy and to the departments of state and justice; the distribution of over 20,000,000 questionnaires of the first and second selective drafts; the use of post offices as recruiting agencies, etc.

The mail services suspended on account of the war were restored as promptly as circumstances permitted, and at the end of the year mail service was in operation to all countries except to Hungary and the parts of Russia under Bolshevik control. During the year parcel post conventions were concluded with Chile, Paraguay, Rumania, Siam, and the Union of South Africa; and by virtue of arrangements made under conventions heretofore concluded, parcel post service was extended to Algeria, British India, Corsica, Egypt, French India, Iceland, Luxemburg, Madeira Islands, Mesopotamia, Palestine, and Tunis. The parcel post service for Belgium, Denmark, Germany, Greece, Liberia, Netherlands, Norway, and Sweden, which was suspended during the war, was resumed.

During the year 1919 the Congressional appropriation of \$100,000 for air mail service was repeated. So successful was the service that for the fiscal year ending June 30, 1920, Congress appropriated \$850,500. The success obtained in the operation of the air mail service during the fiscal year, 1918, led to an important extension of the service from New York to Chicago. This route is operated in two sections (a) New York to Cleveland, and (b) Cleveland to Chicago, and results in the expedition of the delivery of letters from New York by 16 hours to the Middle West and 24 hours to the principal Pacific Coast cities. On the three routes now established, an aggregate of 30,000,000 letters per year may be carried.

During the six-year period from July 1, 1913, to June 30, 1919, the number of first, second, and third-class offices increased from 8406 to 10,825, or 2419. In the same period the combined salaries of postmasters increased from \$14,965,500 to \$19,285,700, an increase of 28.9 per cent. In 1919 the total number of clerical employees, exclusive of assistant postmasters, at first and second-class offices, was 44,681. The total expenditure for clerical service was \$74,251,888. The average salary of clerical employees is now \$1318.03, whereas in 1913 it was \$1052.97.

Government-owned motor vehicle service continued to be extended throughout the year. It is now operated in 27 cities. This service requires 1692 trucks and a personnel of 1880 persons. By Jan. 1, 1920, it was proposed to extend the service to 30 additional cities.

The fiscal year 1919 showed an increase of \$18,851,761 in the amount on deposit in the postal savings system. There were 565,509 depositors with \$167,323,260 to their credit, and the average per capita deposit was \$295.88.

PENSIONS. During the fiscal year 1919, \$222,159,292 was paid for pensions, as compared with \$179,835,329 for 1918; \$11,228 for fees and expenses of examining surgeons, as compared with \$23,756; \$90,000 for field and special examinations, as compared with \$79,729; \$1,188,188 to pensioners in foreign countries, as compared with \$983,687. The total cost for maintenance and expense of the pension system was \$1,433,192, as compared with \$1,527,615 in 1918. The total number of pensioners on the roll at the close of the fiscal year was 624,427, as compared with 646,895 in 1918. In 1919 there were 271,391 Civil War soldiers on the roll, 293,244 Civil War widows; 81 widows of the War of 1812; 215 survivors of the Mexican war; 2739 widows of the same war; and 28,251 on the rolls as a result of the war with Spain. During the year 28 omnibus bills to grant pensions by special acts of Congress were enacted into law. These acts granted pensions or increase of pension to 3442 individuals, among whom was the widow of ex-President Roosevelt.

PATENTS. The total number of applications for patents on inventions during the fiscal year 1919 was 62,755, as compared with 62,399 during 1918; applications for patents, including reissues, designs, trademarks, labels, and prints, was 75,657 as compared with 73,307 during the preceding year. There were 17,735 applications awaiting action when the year closed. At the beginning of the year 14,769 applications were awaiting action. During the year 26,030 patents expired, as compared with 24,593 the previous year. During 1919 the following were granted or registered: 37,259 letters patent, 1355 design patents, 205 reissue patents, 3766 trade-marks, 572 labels, and 196 prints. The total receipts of the department during the year were \$2,113,350, and the total expenditures \$2,178,578, a deficit of \$65,228.

BUREAU OF MINES. During the year 1919 the Bureau of Mines continued to cooperate with the War Department, Navy Department, Department of Agriculture, United States Fuel Administration, War Industries Board, the Capital Issues Committee of the Treasury Department, the Council of National Defense, the War Trade Board, the Emergency Fleet Corporation, the United States Shipping Board, the Bureau of Standards, the National Research Council, and also with other bureaus in the Department of the Interior.

Some noteworthy results of the year's work are: In cooperation with the War and Navy Departments continued the work on plants for recovering helium, a rare gas needed for balloons and airships, from natural gas, and demonstrated the merits of the processes used; completed the construction, in cooperation with the War Department, of a plant for manufacturing sodium cyanide by the Bucher process; in cooperation with the War Department developed a plant for the manufacture of nitric acid by the oxidation of ammonia; investigated mining and milling problems at mineral deposits throughout the country in order to ascertain the available supply of war minerals, and how these minerals could be produced more efficiently; issued reports showing the markets for various ores, minerals, and metals, and giving data on the status of various mineral industries; made a thorough study on the production of sulphuric acid throughout the United States; completed a

comprehensive review of the explosion tests of coal dust at the experimental mine near Bruce-ton, Pa.; determined the value of the geophone, a device for detecting sounds transmitted through coal and rock, in recovery work, with especial reference to its use in locating mine fires and in communicating with miners entombed by a disaster; continued the study of the subsidence of the surface over coal mines in Illinois in order to ascertain what system of mining will do the least damage at the surface while permitting the largest recovery of coal; completed, in coöperation with the Bureau of Indian Affairs, the appraisal of the segregated coal and asphalt lands in Eastern Oklahoma which belong to the Choctaw and Chickasaw Nations; investigated in coöperation with the Public Health Service, dust and ventilation conditions in mines in Arizona; through field demonstrations showed operators and well drillers how large wastes of oil underground may be prevented by cementing oil wells so as to prevent water from entering the oil sands; gave the Bureau of Internal Revenue a method for estimating the future and ultimate production of oil fields and thus determining depletion allowances in taxation; issued monthly reports on the operation of petroleum refineries throughout the United States, showing the output of the refineries and the amount of crude oil that they use; studied methods of preventing losses of oil underground through the infiltration of water into oil sands; determined the advantage of the circulator method of drilling oil wells; coöperated with the State officials of Wyoming in formulating a proposed law governing the drilling of wells in that State; investigated casing troubles and fishing methods in drilling oil and gas wells; coöperated with State officials of Illinois in remedying trouble from underground water in oil fields; determined the effect of various factors on the production of gasoline from heavy oils by the vapor-phase cracking method; made a nation-wide investigation of the grades of motor gasoline being marketed; demonstrated the value of absorption for recovering gasoline vapors in the residual gas from compression plants for obtaining gasoline from natural gas; gave further attention to the recovery of oil from the oil shales of Colorado and Utah; continued investigation of the fusing temperature of the ash of different coals in order to show the liability of coals to clinker; ascertained the suitability of American graphites for various purposes; began a comprehensive investigation of the white clays of the United States and the value of these clays in the ceramic industry; began an investigation of the dolomite deposits of the Eastern States, and of the possibility of using calcined dolomite as a refractory material for lining furnaces; coöperated with the Geological Survey of Ohio in making a survey of the fire clays in that State; in coöperation with the State of Idaho investigated the treatment of complex lead, zinc, and copper-iron sulphide ores by flotation; investigated the fuel value of the lignite in the Nenana field, Alaska; continued investigation of the treatment of molybdenum ores; as a result of the examination of methods of purifying crude graphite, developed improvements in milling practices; studied the possibility of substituting domestic for imported graphite in the manufacture of crucibles; coöperated with the War Industries Board in measures to reserve an adequate supply of platinum

for war requirements; in administering the act regulating the manufacture, sale, possession, and use of explosives during the war, supervised the work of about 14,000 licensing agents throughout the United States and its insular possessions, investigated accidents at explosive plants; examined magazines for storing explosives, and began prosecutions against violators of the provisions of the act; during the year trained 9781 miners in first aid and rescue methods at the mine, safety cars, and stations, as compared with 8851 in the fiscal year 1918; investigated causes of 29 mine accidents, 19 in coal mines and 10 in metal mines; determined the limitations of army gas masks for use at fires and in industrial plants; sampled coal mines for the Navy Department and prepared reports on the quality of coal and the methods of mining and preparing it for the market; continued the work on the explosibility of coal dust from different mines, thereby gaining additional information on how coal mine explosions can be prevented or limited; developed a new method of signaling danger to miners underground by the injection of an ill-smelling substance into the compressed air lines supplying mining machines and pumps; continued tests of explosives to determine their suitability for use in mines and quarries; made further tests of an explosive made of liquid oxygen mixed with carbonaceous material, and investigated its suitability for mining use; in coöperation with State mine inspectors, collected and published monthly reports on fatalities at coal mines throughout the country; improved furnaces in boilers of the Emergency Fleet, increasing the economy 16 per cent; acted in an advisory capacity for the United States Fuel Administration in matters of conservation; aided in extending the use of bituminous coal in water-gas manufacture; planned and had charge of the construction of the government fuel yards in the District of Columbia, from which all Federal and District government plants in or adjacent to the District are supplied; prepared for the War and Navy Departments special steel containing uranium, tungsten, molybdenum, and zirconium.

EMBASSIES AND LEGATIONS TO THE UNITED STATES

Argentina—Tomas A. Le Breton, Ambassador extraordinary and minister plenipotentiary.
Belgium—Baron E. de Cartier de Marchienne, Ambassador extraordinary and minister plenipotentiary.
Bolivia—Don Ignacio Calderon, Envoy extraordinary and minister plenipotentiary.
Brazil—Domicio da Gama, Ambassador extraordinary and minister plenipotentiary.
Bulgaria—Stephen Panaretoff, Envoy extraordinary and minister plenipotentiary.
Chile—Don Beltran Mathieu, Ambassador extraordinary and minister plenipotentiary.
China—Vi Kyuin Wellington Koo, Envoy extraordinary and minister plenipotentiary.
Colombia—Carlos Adolfo Urueta, Envoy extraordinary and minister plenipotentiary.
Costa Rica—Absent.
Cuba—Carlos Manuel de Céspedes, Envoy extraordinary and minister plenipotentiary.
Denmark—Constantin Brun, Envoy extraordinary and minister plenipotentiary.
Dominican Republic—Luis Galván, Envoy extraordinary and minister plenipotentiary.
Ecuador—Don Rafael H. Elizalde, Envoy extraordinary and minister plenipotentiary.
Finland—Armas Herman Saastamoinen, Envoy extraordinary and minister plenipotentiary.
France—J. J. Jusserand, Ambassador extraordinary and plenipotentiary.
Great Britain—Viscount Grey of Fallodon. Appointed ambassador extraordinary and plenipotentiary.
Greece—Georges Roussos, Envoy extraordinary and

minister plenipotentiary.

Guatemala—Don Joaquín Méndez, Envoy extraordinary and minister plenipotentiary.

Haiti—Charles Moravia, Envoy extraordinary and minister plenipotentiary.

Honduras—Don J. Antonio López Gutierrez, Envoy extraordinary and minister plenipotentiary.

Italy—Prince Alliata di M. di Villafranca, Counselor of embassy and chargé d'affaires ad interim.

Japan—K. Shidehara, Appointed ambassador extraordinary and plenipotentiary.

Mexico—Ing. Ygnacio Bonillas, Ambassador extraordinary and minister plenipotentiary.

Montenegro—Antoine Gvozenovitch, Envoy extraordinary and minister plenipotentiary (absent).

Netherlands—J. T. Cremer, Envoy extraordinary and minister plenipotentiary.

Nicaragua—Don Diego Manuel Chamorro, Envoy extraordinary and minister plenipotentiary.

Norway—H. H. Bryn, Envoy extraordinary and minister plenipotentiary.

Panama—Don Belisario Porras, Envoy extraordinary and minister plenipotentiary.

Paraguay—Manuel Gondra, Envoy extraordinary and minister plenipotentiary.

Persia—Mirza Abdul Ali Khan, Sadigh-es-Saltaneh, Envoy extraordinary and minister plenipotentiary.

Peru—Don Carlos Gibson, Secretary of embassy and chargé d'affaires ad interim.

Portugal—Viscount d'Alte, Envoy extraordinary and minister plenipotentiary.

Rumania—N. H. Lahovary, Secretary of legation and chargé d'affaires ad interim.

Russia—Boris Bakhmetieff, Ambassador extraordinary and plenipotentiary.

Salvador—Don Salvador Sol, Envoy extraordinary and minister plenipotentiary.

Serbs, Croats, and Slovenes—Slavko Y. Grouitch, Envoy extraordinary and minister plenipotentiary.

Siam—Phya Prabha Karavongse, Envoy extraordinary and minister plenipotentiary.

Spain—Don Juan Riaño y Gayangos, Ambassador extraordinary and plenipotentiary.

Sweden—W. A. F. Ekengren, Envoy extraordinary and minister plenipotentiary.

Switzerland—Hans Sulzer, Envoy extraordinary and minister plenipotentiary.

Uruguay—Jacobo Varela, Appointed envoy extraordinary and minister plenipotentiary.

Venezuela—Don Santos A. Dominici, Envoy extraordinary and minister plenipotentiary.

EMBASSIES AND LEGATIONS OF THE UNITED STATES

Argentina—Frederic Jessup Stimson, Ambassador extraordinary and plenipotentiary.

Belgium—Brand Whitlock, Ambassador extraordinary and minister plenipotentiary.

Bolivia—S. Abbot Maginnis, Envoy extraordinary and minister plenipotentiary.

Brazil—Edwin V. Morgan, Ambassador extraordinary and minister plenipotentiary.

Bulgaria—Envoy extraordinary and minister plenipotentiary.

Chile—Joseph H. Shea, Ambassador extraordinary and plenipotentiary.

China—Paul S. Reinsch, Envoy extraordinary and minister plenipotentiary.

Colombia—Hoffman Philip, Envoy extraordinary and minister plenipotentiary.

Costa Rica—Envoy extraordinary and minister plenipotentiary.

Cuba—William E. Gonzalez, Envoy extraordinary and minister plenipotentiary.

Czecho-Slovakia—Richard Crane, Envoy extraordinary and minister plenipotentiary.

Denmark—Norman Hapgood, Envoy extraordinary and minister plenipotentiary.

Dominican Republic—William W. Russell, Envoy extraordinary and minister plenipotentiary.

Ecuador—Charles S. Hartman, Envoy extraordinary and minister plenipotentiary.

Egypt—Hampson Gary, Agent and consul-general.

France—Hugh Campbell Wallace, Ambassador extraordinary and minister plenipotentiary.

Great Britain—John W. Davis, Ambassador extraordinary and minister plenipotentiary.

Greece and Montenegro—Garrett Droppers, Envoy extraordinary and minister plenipotentiary.

Guatemala—Benton McMillin, Envoy extraordinary and minister plenipotentiary.

Haiti—Arthur Bailly-Blanchard, Envoy extraordinary and minister plenipotentiary.

Honduras—T. Sambola Jones, Envoy extraordinary and minister plenipotentiary.

Italy—Thomas Nelson Page, Ambassador extraordinary and minister plenipotentiary.

Japan—Roland S. Morris, Ambassador extraordinary and minister plenipotentiary.

Liberia—Joseph L. Johnson, Minister resident and consul-general.

Mexico—Henry P. Fletcher, Ambassador extraordinary and minister plenipotentiary.

Morocco—Maxwell Blake, Agent and consul-general.

The Netherlands and Luxemburg—Envoy extraordinary and minister plenipotentiary.

Nicaragua—Benjamin L. Jefferson, Envoy extraordinary and minister plenipotentiary.

Norway—Albert G. Schmedeman, Envoy extraordinary and minister plenipotentiary.

Panama—William J. Price, Envoy extraordinary and minister plenipotentiary.

Paraguay—Daniel F. Mooney, Envoy extraordinary and minister plenipotentiary.

Persia—John L. Caldwell, Envoy extraordinary and minister plenipotentiary.

Peru—Envoy extraordinary and minister plenipotentiary.

Poland—Hugh S. Gibson, Envoy extraordinary and minister plenipotentiary.

Portugal—Thomas H. Burch, Envoy extraordinary and minister plenipotentiary.

Rumania—Charles J. Vopica, Envoy extraordinary and minister plenipotentiary.

Russia—David R. Francis, Ambassador extraordinary and minister plenipotentiary.

Salvador—Boaz W. Long, Envoy extraordinary and minister plenipotentiary.

Serbs, Croats, and Slovenes—H. Percival Dodge, Envoy extraordinary and minister plenipotentiary.

Siam—Envoy extraordinary and minister plenipotentiary.

Spain—Joseph E. Willard, Ambassador extraordinary and minister plenipotentiary.

Sweden—Ira Nelson Morris, Envoy extraordinary and minister plenipotentiary.

Switzerland—Pleasant A. Stovall, Envoy extraordinary and minister plenipotentiary.

Uruguay—Robert Emmet Jeffery, Envoy extraordinary and minister plenipotentiary.

Venezuela—Preston McGoodwin, Envoy extraordinary and minister plenipotentiary.

SIXTY-FIFTH CONGRESS, SHORT SESSION. Jan.

7. Chairman Sims of the House Committee on Interstate Commerce introduced two amendments to the Railway Control Act, which would extend operation for five years and provide an additional revolving fund of \$500,000,000.

Jan. 9. A measure is passed by the House authorizing the Secretary of War to adjust contracts for material, partly fulfilled when the war ended.

Jan. 13. The House appropriates \$100,000,000 for furnishing foodstuffs to populations in Europe and countries contiguous thereto outside of Germany, in accordance with a cabled request from the President; a \$27,000,000 River and Harbor Bill was also passed.

Jan. 16. Mr. La Follette is exonerated in the Senate of the charge of disloyalty.

Jan. 24. The Senate passes a bill appropriating \$100,000,000 for relief of the famine conditions in Europe, exclusive of the Central Empires but including the non-Turkish parts of Asia Minor.

Jan. 28. The Immigration Committee of the House reports a bill prohibiting immigration into the United States for a period of four years; the Post Offices Committee votes in favor of returning the telephone and telegraph systems to their owners on Dec. 31, 1919.

Jan. 31. In the House, the Naval Committee reports a naval appropriations bill carrying \$600,000,000 for new construction. This was to be cancelled in the event of international limitations of armaments.

Feb. 6. In the House, the War Revenue Bill is submitted, as agreed upon by a conference committee of both branches; the measure is esti-

mated to raise \$6,000,000,000 in taxes for the current fiscal year and \$4,000,000,000 a year thereafter.

Feb. 8. The Senate adopts the Post Office appropriation bill carrying \$400,000,000 and authorizing \$200,000,000 additional for the construction of roads during the next three years. The House Committee on Agriculture introduces a bill providing \$1,000,000,000 to sustain the government's guarantee of \$2.26 a bushel for wheat, in face of a much lower price which will obtain in the world's markets. The conference report on the revenue bill was adopted by a vote of 310 to 11.

Feb. 10. In the Senate a resolution providing for woman suffrage by Federal Constitutional amendment fails a second time by a margin of one vote to obtain the necessary two-thirds; opposition is chiefly among Southern Democrats. The army appropriation bill of \$1,117,290,000 was reported in the House.

Feb. 11. The naval appropriation bill carrying the Administration's building plan passes the House, 194 to 142.

Feb. 13. The Senate adopts the conference report on the revenue bill.

Feb. 14. The Senate refuses to consider a resolution by Mr. Johnson of California who demands the withdrawal of American troops from Russia.

Feb. 18. The House passes the army appropriation bill, limiting enlistment to one year, eliminating the committee's proposal of a temporary army of 500,000, and providing for an army of 175,000.

Feb. 19. Senator Poindexter severely criticizes the constitution of the League of Nations, as surrendering high functions of sovereignty.

Feb. 22. Senator Reed denounces the League of Nations as abrogating the Monroe Doctrine. The House adopts the bill sustaining the government's price of \$2.26 on wheat. The Ways and Means Committee reports legislation for the Victory Liberty Loan.

Feb. 24. Senator Lewis defends the League of Nations.

Feb. 26. The House passes the Victory Loan bill.

Feb. 27. The Senate adopts the wheat guarantee bill.

Feb. 28. Senator Lodge attacks the League of Nations.

March 2. The Senate, after an all-night session, adopts the bill providing for the Victory Loan.

March 3. Senator Lodge offers a resolution recommending the rejection of the proposed constitution of the League of Nations, and reads the names of 37 Senators in the next Congress who have signed the resolution.

March 4. In the Senate a filibuster conducted principally by Senator Sherman of Illinois defeats an appropriation for financing railroads and constructing ships; the annual appropriation bills of the army and navy also fail of passage. The 65th Congress comes to an end with many important legislative measures remaining without final vote.

March 6. A Senate committee investigating Bolshevism continues its hearings. Raymond Robins, head of the American Red Cross mission to Russia, although widely reported as favoring the Bolsheviks, denounces the movement as a

menace, economically impossible, and morally wrong.

March 8. The Senate committee investigating Bolshevism hears David R. Francis, recently returned ambassador to Russia, who declares that slaughter will follow the withdrawal of the Allies.

SIXTY-SIXTH CONGRESS, SPECIAL SESSION. May 19. The Sixty-sixth Congress meets in special session, with the Republicans in control in both houses. Mr. Cummins was selected president pro tem in the Senate, and Mr. Gillett, of Massachusetts, was selected as Speaker of the House of Representatives.

May 20. A message from President Wilson, cabled from Europe, is read in both branches. He recommends reconsideration of taxes, tariff protection for chemical and dye industries, passage of the woman suffrage proposal, repeal of war-time prohibition against manufacturing light wines and beers, and the passage of labor legislation.

May 21. The House passes the woman suffrage amendment to the Constitution by a vote of 304 to 89. The House also passes a deficiency appropriation bill carrying \$45,000,000 to pay overdue obligations to dependents of soldiers and sailors.

May 23. The Senate passes the war risk insurance bill without debate.

May 28. All the Senate committee assignments agreed upon in caucus were ratified by a party vote of 49 to 42. The expected revolt of the progressive Republicans failed to materialize.

June 2. Senator Johnson of California makes an attack on the League of Nations.

June 3. Senator Lodge and Senator Borah charge that the texts of the Peace Treaty are in the hands of certain New York financiers. The Interstate Commerce Committee reports favorably on a bill providing for the immediate return of the telephone and telegraph systems.

June 4. The Senate adopts the woman suffrage amendment to the United States Constitution by a vote of 56 to 25.

June 6. The House Committee on Military Affairs completes the annual army appropriation bill carrying \$800,000,000.

June 9. Senator Borah produces a copy of the treaty of peace with Germany, brought by a newspaper man from Paris, and after long debate, succeeds in printing it in the *Record*. In the House, the Appropriations Committee reports a bill providing \$750,000,000 for the needs of the Railroad Administration, declining to grant the Director General's request for \$1,200,000,000.

June 10. In the Senate, Mr. Knox offers a resolution serving notice upon the Peace Conference that the Senate desires separation of the question of a League of Nations from the Treaty of Peace. The House passes the railroad appropriation bill.

June 11. The Senate Committee investigating the source of a copy of the peace treaty, is informed by Elihu Root, former Secretary of State, that it was he who had shown it to Mr. Lodge, after obtaining it through two New York financiers who had been serving with the American Peace Delegation in important capacities. The House decides to appropriate money for an army of 300,000 men; the War Department had wanted 500,000, and the Committee on Military Affairs had recommended 400,000.



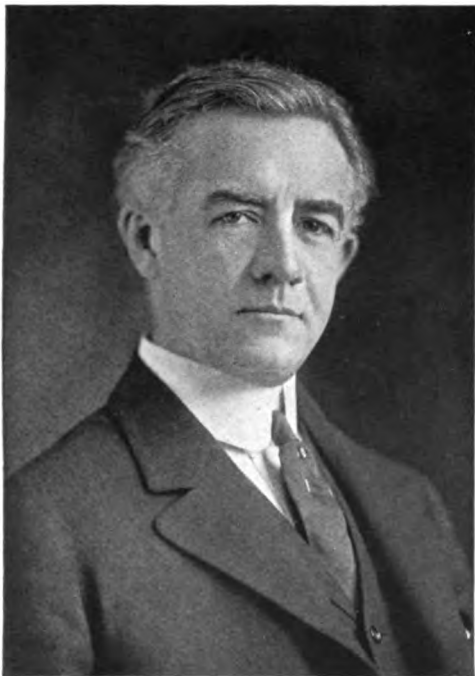
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Wisconsin

FOUR UNITED STATES SENATORS PROMINENT DURING 1919

June 12. The Senate Foreign Relations Committee favorably reports the Knox Resolution. . . . The railroad appropriation bill is passed; also a measure restoring rate-making power to the Interstate Commerce Commission. In the House the naval appropriation bill is reported, carrying \$601,500,000, which is \$120,000,000 less than the bill sent to the Senate at the last session.

June 16. The Senate Committee on Military Affairs is urged, by the Secretary of War, Mr. Baker, and the Chief of Staff, General March, to provide for an army of 500,000 men. The House passes the naval appropriation bill; \$15,000,000 is provided for naval aviation, only one-third of the Department's recommendation.

June 17. In the Senate, Mr. Knox speaks in support of his resolution to separate the Covenant of the League of Nations from the Peace Treaty, demanding more time for consideration of the Covenant, and opportunity for deliberate decision on the wisdom of the United States joining the League. The House Committee investigating the Administration's conduct of the War forms five sub-committees—on aviation, cantonments, expenditures abroad, quartermaster corps, and ordnance.

June 18. Both branches vote for repeal of the daylight saving law, to take effect at the end of the present summer. In the Senate, Mr. McCumber speaks at length in defense of the Covenant of the League of Nations.

June 19. The Senate Committee on Naval Affairs is urged by Secretary Daniels to increase the House provision for aviation. In the Senate, Mr. Thomas speaks at length in criticism of the Knox resolution, and charges the Republicans with playing politics. The House, without roll call, passes the bill to restore telephone and telegraph lines to their owners.

June 21. The Senate Republicans opposing the Covenant of the League of Nations are advised by Elihu Root, former Secretary of State, to register their objections by a qualifying resolution, adopted with the ratification of the treaty.

June 23. The Senate Committee on Naval Affairs completes consideration of the annual appropriation bill, carrying \$646,272,000.

June 24. The Senate votes to provide for an army of 400,000 men: The House had made provision for only 300,000. Senate and House conferees on the bill to turn back the wire systems to their owners agree upon August 1st as the date when the transfer should be made.

June 25. The Senate passes the army appropriation bill, carrying \$880,000,000.

June 26. The Senate passes the naval appropriation bill, after increasing the amount available for aviation. In the House, the Judiciary Committee completes its draft of a bill for the enforcement of the prohibition amendment to the Constitution and of the war-time prohibition act.

June 27. Senate and House conferees agree upon an army strength of 325,000.

June 28. The Senate passes the sundry civil appropriation bill, the last of the supply measures.

June 30. In the Senate, Mr. Borah asserts that financial and business interests are back of propaganda to force the Senate to accept the Covenant of the League of Nations. Both branches adjourn until July 8th, having passed

all appropriation measures for the fiscal year beginning July 1st.

July 9. In the House, the Chairman of the Rules Committee, Mr. Campbell, offers a resolution making it unlawful for the President to absent himself from the territorial jurisdiction of the United States.

July 10. In the Senate, President Wilson presents the Peace Treaty and explains the atmosphere in which the peace delegates worked.

July 14. In the Senate, Mr. Swanson delivers an address in support of the Peace Treaty and the League of Nations, which is understood to represent the President's views. The House fails to pass the agricultural appropriation bill over the President's veto, although the measure receives 247 votes to 135; in considering the prohibition enforcement bill, the House rejects an amendment permitting the sale of beer containing not more than 2.75 per cent of alcohol.

July 15. In the Senate debate on the Peace Treaty, Mr. Lodge declares that the Shantung provision was a bribe to Japan; Mr. Norris also assails the outrage perpetrated on China.

July 16. The Senate adopts a resolution calling upon the President for a copy of the Treaty alleged to have been entered into between Germany and Japan before the close of the war. The House repasses the sundry civil appropriations bill (vetoed by the President), increasing the provision for disabled soldiers from \$6,000,000 to \$14,000,000.

July 17. The Senate adopts a resolution calling upon the President for a copy of a letter expressing the protest of three members of the American Peace Delegation against the Shantung provisions of the peace treaty.

July 18. The Senate passes the sundry civil appropriations bill. The House passes the agricultural appropriation bill after eliminating the provision repealing the daylight saving law which has caused the President to veto the original measure.

July 22. The Senate Foreign Relations Committee, by a party vote, declines to approve the President's request that an American member of the Reparations Commission be appointed prior to ratification of the peace treaty. The House passes a drastic prohibition enforcement bill by a vote of 287 to 100. The Rules Committee begins an inquiry into the Mexican situation, with Ambassador Fletcher as the first witness; he submits a list of 217 Americans officially known to have been killed in Mexico since 1911.

July 23. The Senate passes the agricultural bill. In the House the Speaker receives the draft of a bill from the Secretary of the navy which would permit the navy to continue in peace time to handle commercial wireless messages.

July 24. In the Senate, Mr. Lodge introduces a resolution calling upon the President to transmit to the Senate the proposed treaty with France, one of the provisions of which is that it should be submitted simultaneously with the Peace Treaty.

July 25. In the Senate, Mr. Pittman, a member of the Senate Foreign Relations Committee, urges ratification of the Peace Treaty, without reservations; if not, he maintains other nations would be encouraged to make reservations, and reservations in any event would have no standing.

July 28. The Senate Foreign Relations Committee completes the reading of the peace treaty.

gee, George P. McLean. REPRESENTATIVES (Republicans, 4; Democrat, 1): Augustus Lonergan, Richard P. Freeman, John Q. Tilson, Schuyler Merritt, James P. Glynn.

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ALASKA.—George B. Grigsby.

HAWAII.—J. Kuhio Kalanianaʻole.

PHILIPPINES.—Jaime C. De Veyra, Teodoro R. Yango.

PORTO RICO.—Felix Cordova Davila.

CLASSIFICATION

SENATE		HOUSE	
Republicans.....	48	Republicans.....	239
Democrats.....	46	Democrats.....	190
Republican and Pro-		Independent.....	1
gressive.....	1	Independent Repub-	
Vacancy.....	1	ans.....	2
Total.....	96	Prohibitionist.....	1
		Vacancies.....	2
		Total.....	435

GOVERNORS OF THE STATES AND TERRITORIES

States	Governors	Politics
Alabama.....	Thomas F. Kilby.....	D.
Arizona.....	Thomas E. Campbell.....	R.
Arkansas.....	Charles H. Brough.....	D.
California.....	William D. Stephens.....	R.
Colorado.....	Oliver H. Shoup.....	R.
Connecticut.....	Marcus H. Holcomb.....	R.
Delaware.....	John G. Townsend, Jr.....	R.
Florida.....	Sidney J. Catts.....	D.
Georgia.....	Hugh M. Dorsey.....	D.
Idaho.....	D. W. Davis.....	R.
Illinois.....	Frank O. Lowden.....	R.
Indiana.....	James P. Goodrich.....	R.
Iowa.....	William L. Harding.....	R.
Kansas.....	Henry J. Allen.....	R.
Kentucky.....	James D. Black.....	D.
Louisiana.....	Ruffin G. Pleasant.....	D.
Maine.....	Carl E. Milliken.....	R.

Maryland.....	Emerson C. Harrington.....	D.
Massachusetts.....	Calvin Coolidge.....	R.
Michigan.....	Albert E. Sleeper.....	R.
Minnesota.....	J. A. A. Burnquist.....	R.
Mississippi.....	Theo. G. Bilbo.....	D.
Missouri.....	Frederick D. Gardner.....	D.
Montana.....	Samuel Vernon Stewart.....	D.
Nebraska.....	Samuel R. McKelvie.....	R.
Nevada.....	Emmet D. Boyle.....	D.
New Hampshire.....	John H. Bartlett.....	R.
New Jersey.....	Walter E. Edge.....	R.
New Mexico.....	O. A. Larrazolo.....	R.
New York.....	Alfred E. Smith.....	D.
North Carolina.....	Thomas W. Bickett.....	D.
North Dakota.....	Lynn J. Frazier.....	R.
Ohio.....	James M. Cox.....	D.
Oklahoma.....	J. B. A. Robertson.....	D.
Oregon.....	B. W. Olcott.....	R.
Pennsylvania.....	William O. Sproul.....	R.
Rhode Island.....	R. Livingston Beekman.....	R.
South Carolina.....	Robert A. Cooper.....	D.
South Dakota.....	Peter Norbeck.....	R.
Tennessee.....	A. H. Roberts.....	D.
Texas.....	W. P. Hobby.....	D.
Utah.....	Simon Bamberger.....	D.
Vermont.....	Horace G. Graham.....	R.
Virginia.....	Westmoreland Davis.....	D.
Washington.....	Louis F. Hart.....	R.
West Virginia.....	John J. Cornwell.....	D.
Wisconsin.....	Emanuel L. Philipp.....	R.
Wyoming.....	Robert D. Carey.....	R.

<i>Territories</i>		
Alaska	Thomas Riggs, Jr.....	D.
Hawaii	Charles J. McCarthy.....	D.

<i>Island Possessions</i>	
Philippines	Francis Burton Harrison....
Porto Rico.....	Arthur Yager.....

CABINET CHANGES. The second resignation from President Wilson's official family since the signing of the armistice was announced on January 13th, when the White House made public correspondence between President Wilson and Attorney-General Gregory, showing that the latter would quit the Department of Justice on March 4th, after a little more than four years of service as Attorney-General. Like Mr. McAdoo, who resigned as Secretary of the Treasury, Mr. Gregory, who had been attached to the Department of Justice for nearly six years, first as special assistant to the Attorney-General, and later as Attorney-General, pleaded pecuniary responsibilities as the reason for leaving the cabinet. It was understood at the time that Mr. Gregory, like Mr. McAdoo, intended to resume the practice of law. Mr. Gregory's letter was dated January 9th, and the President's reply was cabled from Paris on the next day. Mr. Gregory's letter follows:

Dear Mr. President:

In accordance with the purpose expressed in our conversation just before you went abroad, I tender my resignation as Attorney-General. It has been not quite six years since I became connected with your Administration, and more than four years ago, a few days after war was declared by the European nations, I became a member of the cabinet. It can be fairly said that during no other six years in the history of our country have so many great problems been presented and solved. The reflection that at such a time I have been permitted to stand by your side, and assist in a modest way in dealing with these national and international issues, is now, and will always be, my greatest source of pride. No man ever served a leader who was more uniformly considerate, more kindly helpful, and more generously appreciative. No subordinate was ever more deeply grateful for the numberless friendly words and acts of his superior. Pecuniary responsibilities of a substantial nature rest upon me, and my private affairs have long demanded attention.

During the continuation of actual warfare I did not feel at liberty to weigh these personal considerations in the balance against the public duties with which I was charged. By March fourth of the present year the Department of Justice will have substantially brought its war activities to a close and be working under normal

conditions. I therefore ask that this resignation take effect on that date.

Faithfully yours,
THOMAS W. GREGORY.

In response to this President Wilson cabled from Paris:

My dear Attorney-General:

It is with profound reluctance and regret that I accept your resignation. I do so only because you have convinced me that it is necessary in your own interests to retire. There has been no one with whom I have been associated in Washington whom I have learned more to trust, nor to whose counsels I have attached more value and importance. Your administration of your office has been singularly able and singularly conscientious and watchful of the public interest, and I feel that it is a very serious loss to the nation that you should find yourself obliged to withdraw from public life. My best wishes not only, but my affectionate friendship will follow you into retirement, and I hope with all my heart that in some way and at some time, I shall again have the privilege and benefit of being associated with you.

Cordially and faithfully yours,
WOODROW WILSON.

On February 27th, President Wilson nominated A. Mitchell Palmer to the office of Attorney-General to succeed Mr. Gregory. At this time Mr. Palmer was Alien Enemy Property Custodian and because of this some opposition arose to him in the Senate. It was alleged that he had used his office to give political positions to Democrats, and had not handled the affairs of his office with impartiality. He denied these accusations and asked for the fullest investigation of his office. The chief opposition to Mr. Palmer came from Senator Frelinghuysen of New Jersey and Senator Calder of New York. On March 1st, the Senate Judiciary Committee voted unanimously for a favorable report on the confirmation of Mr. Palmer. Owing to a filibuster on a small scale over the oil lands leasing bill, the Senate adjourned without confirming Mr. Palmer's appointment. This was almost an unprecedented action on the part of the Senate. Ordinarily the Senate confirms the President's selection for a cabinet position with the least possible delay. On March 5th, Mr. Palmer was sworn in as a recess appointment to the position of Attorney-General by Chief Justice White of the Supreme Court.

Mr. Palmer's appointment was not confirmed by the Senate until the last week in August. He was born in Stroudsburg, Pa., on May 4, 1872. He was graduated from Swarthmore College in 1891, with the highest honors in his class. He was admitted to the bar in Pennsylvania in 1893. He was a delegate to the Democratic National Conventions in 1912 and 1916. He was elected to the 61st, 62d, and 63d Congresses; declined appointment as judge of the Court of Claims; and in October, 1917, was appointed to the position of Alien Enemy Property Custodian, which office he resigned on Mar. 5, 1919, to assume the duties of Attorney-General.

The third resignation from President Wilson's cabinet since the signing of the armistice was that of William C. Redfield, Secretary of Commerce. His resignation was handed to President Wilson and accepted, according to an official announcement made September 1st. The reason that Mr. Redfield gave for his resignation was that he felt it necessary to go back to private life because his personal affairs needed attention after his long absence from them. He had been a member of the cabinet for six years. It was said at Washington that the friction between

Mr. Redfield and Mr. Walker D. Hines, the Director-General of Railroads, over steel prices last spring may have had a bearing on the resignation. Ever since that disagreement occurred, rumors that it was impending had been reported, one after the other, at frequent intervals. The controversy between Mr. Redfield and Mr. Hines occurred when the Secretary organized an Industrial Board to settle upon fair prices for necessities. Price agreements were made by the Board with manufacturers of various commodities, including steel. However, when the time came for Director-General Hines to purchase steel rails for the railroads, he considered the Board's prices too high. Considerable acrimony developed in the course of the discussion of the matter. At last it was referred to President Wilson who was then in Paris. There was never an authoritative announcement of the outcome, but the Industrial Board did not long survive and Mr. Hines purchased steel rails on the open market through the medium of competitive bids. The Secretary denied that his resignation was brought about by disagreement. He said "My resignation is not the result of any quarrel, disagreement, chagrin or any unpleasant occurrence, but is caused solely and entirely by my desire to return to business and give my attention to my personal affairs, which for more than eight years have been subordinate to the public interest." Mr. Redfield stated that he expected to go to New York City, but that he had not made any definite plans for his immediate future in the business world. He was at one time connected with Hoe and Company, the printing press manufacturers, and afterward manufactured iron and steel forgings. When he became a member of President Wilson's cabinet in 1913 he was Vice-President of the American Blower Company, and a director of the Equitable Life Insurance Society. He was also President of the American Manufacturers' Export Association. He made industrial studies in Europe in 1900 and 1907, and in 1910-1911 made a trip around the world, later writing a book on his observations, entitled *The New Industrial Day*. Mr. Redfield was succeeded by Joshua Willis Alexander, Representative from the Third Congressional District of Missouri. He was graduated from Christian University in 1872, 20 years after his birth. He studied law and was admitted to the bar of Missouri in 1875. He was elected to the 60th, 61st, 62d, 63d, 64th, 65th, and 66th Congresses.

The fourth resignation from President Wilson's cabinet after the signing of the armistice was that of Secretary of the Treasury Glass. He had succeeded Mr. McAdoo to the Treasury position in December, 1918. He resigned late in the year in order to fill the vacancy in the United States Senate caused by the death of Senator Thomas S. Martin (q.v.). There was considerable comment at the time of his resignation to the effect that his appointment to the Senate would bring another strong administration man to the support of the treaty fight.

POLITICAL PARTIES

The year 1919 was a comparatively quiet year as far as the history of national political parties is concerned. There were no national elections, with the exception of one or two by-elections to fill vacancies. The States that held elec-

tions were very few, as is customary in an odd-numbered year. (Almost 40 States hold their elections in even-numbered years.) The energies of the Republican and Democratic parties were spent in preparing for the coming national election in 1920. No definite issues appeared, with the possible exception of the Peace Treaty in general and the League of Nations in particular. The Chairman of the Democratic National Committee announced that the chief issue of the campaign in 1920 would be the League of Nations. This issue was forced upon the country, according to many Democrats of prominence, because of the failure of the Republican majority in the Senate to ratify the Peace Treaty. The Socialist Party was in a state of chaos on account of the many splits that occurred in it. The radical element, the so-called "Left Wingers" broke away from the main body and formed the Communist Labor Party. The "Right Wing" continued to control the organization of the party and used this control to some extent to weed out the Left Wing. This cleavage in the party was very confusing to the public at large, as well as to many politicians and State and national officials. This resulted in the layman getting the general idea that the Socialist party stood for Bolshevism, a rather loosely defined term that came to mean anything from government ownership of public utilities to "direct action," the forcible seizure of industries and the overthrow of the government by violence. Another event of the year was the entrance of organized labor into the field of politics for the first time since the Knights of Labor died out and the American Federation of Labor was established. A National Labor Party was established at Chicago and various local labor parties were organized throughout the various States and in the large cities.

Republican Party. The Republican National Committee held its first meeting of the year in Chicago on January 10th and 11th. It declared in favor of universal female suffrage by constitutional amendment, and applauded speeches condemning Socialism, Bolshevism, and government ownership. The committee practically gave Will H. Hays, the chairman, power to conduct the affairs of the party at the next national election in November, 1920. Resolutions lauding ex-President Roosevelt, who had died only a short time before, were adopted, and plans were made to erect a permanent national monument by popular subscription. The Democratic national administration was bitterly attacked and denounced by committeemen for its socialistic tendencies, and for the placing of the control of the departments of the government in the hands of the minority of the South, while the majority of the North paid 90 per cent of the taxes. Mrs. Medill McCormick, of Illinois, Chairman of the Women's Executive Committee, read a long report, outlining plans for women's organizations in every State, and for the active participation of women in the affairs of the party. Governor Beekman of Rhode Island referred to the recent elections of the Republicans in the congressional by-elections, and remarked about the southern minority spending the money collected from the northern majority. Among the other prominent speakers were Governor Burnquist of Minnesota, Governor Harding of Iowa, and Representative Royal Johnson, who appeared in the uniform of an army officer.

It was reported that Hays was the speaker at the prayer service for the League of Nations and will go to that end. He was also a can national League of Nations northwest rail B. Kellogg during the war and Governor J. A. for the Chairman of the confined himself on George Creel, Chairman of Public Information.

On March 11th, the their attention to the selection of members of the House of Representatives Congress. Representative sets was selected as the majority speaker. This selection by the meant virtual election. James K. logical candidate, but, according to been too closely associated with to be a desirable candidate. Frank dell of Wyoming, a veteran member of and considered an extreme reactionary named floor leader (carrying with it the manship of the Ways and Means Committee after Representative Mann had declined the honor. The Committee on Committees, which ordinarily composed of the members of the Ways and Means Committee, was supplanted by a Steering Committee. This Steering Committee was completely dominated by the "Old Guard," led by Uncle Joe Cannon and Mr. Mann. The entire slate of appointments was jammed through, and committee appointments were made in accordance with the seniority rule. Mr. Mann, after declining to accept the floor leadership, refused to take a committee assignment. This would leave him free to be the actual master of the House, while his supporters, the newly named floor leader, and the Steering Committee might do his bidding. On March 30th Representative Longworth, the virtual leader of the Progressive Republicans in the House, declared in a statement that the control of the Republican policies was in the hands of the Mann-controlled Committee on Committees, and that he (Longworth) and his followers would renew their demand for an enlargement of the Steering Committee, so as to include representatives of labor, the progressive element, and the West. Mr. Longworth said the power of the Steering Committee was greater than that once held by the then Speaker of the House, Uncle Joe Cannon, and the committee, in his opinion, would override the Speaker in the determination of legislation and decide the course of the Republican party in the House, thereby outlining the policies of the presidential campaign of 1920. Mr. Longworth appealed to the Republicans of the House to support him and his band of progressives in their fight to enlarge the size of the Steering Committee. He said the fight would be carried to the next Republican caucus

to be held a week before the next House organized. When the House was organized before the meeting of the special session called by President Wilson from Europe, Mr. Longworth was unsuccessful in fighting the "Old Guard" programme and everything went through the way the Steering Committee had arranged.

There gradually developed a strong opposition to Mr. Mondell's leadership. At the time the daylight saving bill was up before the House this feeling reached its height. Many Republicans bolted from his stand on the matter and voted with the Democrats for the repeal of the measure.

The Republican National Committee met in Washington during the second week in December in order to decide the time and place for holding the National Convention for the purpose of nominating a presidential candidate. Chicago was chosen, and June 8th was the date selected. An innovation was adopted inasmuch as a platform committee was selected half a year in advance of the convention. This was done because of the unusual character of the campaign and the vital issues involved in the election of 1920. The meeting brought together many leaders from all parts of the country, including many Congressmen and Senators. The number of women present caused considerable comment and showed the tremendous political change that had swept the country in the last year or two. The principal speakers were Governor Sprout of Pennsylvania, Governor McKelvie of Nebraska, and Mrs. Medill McCormick of Illinois.

The year was pregnant with presidential booms throughout the Republican ranks. The death of former President Roosevelt (q.v.) in January, caused a complete upset in the plans of the Republican party. Had he lived it seemed almost certain that he would have been the candidate for president in 1920. Even the "Old Guard," as the standpatters and reactionaries were called, had apparently forgotten his defection from the party in 1912, and had come out and hailed him as the choice of a united party in the coming election. Upon his death chaotic conditions reigned in the ranks of the party, largely on account of the difficulty of picking a successor. Among the various names mentioned at that time were Senator Knox of Pennsylvania, Roosevelt's choice as a compromise candidate between himself and Hughes in 1916, Senator Harding of Ohio, and Major-General Leonard Wood. Others mentioned were Senators Borah of Idaho and Johnson of California, and Mr. Taft and Mr. Hughes.

Republican women were officially welcomed into that party at a dinner held in Washington under the auspices of the Women's Executive Committee. The newly chosen Speaker of the House, Mr. Gillett, Will Hays, Chairman of the National Committee, and Senator Cummins, Chairman of the Senate Committee of Interstate Commerce, all welcomed them in, and emphasized very strongly equality for all holders of the ballot. The Women's Committee decided that there was to be no separate women's organization formed within the party.

The Cincinnati *Enquirer* took a poll of Congress to determine the choice of both houses for the Presidential candidate in 1920. The question asked was "Who, in your opinion, will be the nominee of the Republican Party in 1920?" The result in the House of Representatives was as

follows: Wood, 116; Lowden, 41; Watson, 23; Harding, 22, and Johnson, 6, with several scattering. In the Senate the vote was Wood, 20; Harding, 4; Johnson, 4; Watson, 3.

In the State elections held in November one of the most important was the reelection of Governor Coolidge, of Massachusetts by the largest majority ever given to a Governor of that State. The issue was one of "law and order." This issue arose over the Boston police strike which was put down by the State militia, called out by Governor Coolidge. His platform was anti-strike, while that of his opponent favored the strikers. The victory of the "law and order" candidate was everywhere hailed throughout the country. President Wilson sent the Governor his congratulations.

Democratic Party. Vance McCormick, Chairman of the Democratic National Committee, resigned his position in January, 1919. He was in Paris at the time of his resignation and stated that the cause of it was the fact that he could not satisfactorily carry on the duties to which he had been assigned by President Wilson with the American Peace Commission, and at the same time carry on the work of the national committee. His position with the American Peace Commission was as Chairman of the War Trade Board. His resignation came as a complete surprise to official and political Washington, although it had been known by some of his closest friends. He said in his letter:

It is with keen regret that I am compelled to take this action, as I had hoped upon the conclusion of the war to be able to again resume active control of the committee's affairs, but this I find now impossible to do, and as it is most important that the organization work of the committee should be vigorously prosecuted, I feel in justice to the committee, I should take this step.

I want to take this opportunity of expressing to you my deep appreciation for the hearty cooperation you have always accorded me since I assumed the chairmanship of the campaign of 1916. It is with the deepest regret that I am compelled to sever a relationship which has been so full of many delightful associations.

At a meeting of the National Committee held in Washington on February 26th, Homer S. Cummings, of Connecticut, was unanimously elected chairman to succeed Mr. McCormick. At the same meeting a complete reorganization was decided upon for a militant campaign in 1920. J. Bruce Kremer, of Butte, Mont., and Samuel B. Amidon, of Wichita, Kan., were elected Vice-Chairmen; G. E. Hoffman of Fort Wayne, Ind., Secretary; W. R. Hollister, of Jefferson City, Mo., Executive Secretary (succeeding Carter Glass), and W. D. Jamieson of Shenandoah, Iowa, Director of Finance.

A plan for an Associate National Committee of women, proposed by Mrs. George Bass, Chairman of the Women's Bureau of the National Committee, was adopted. Members of the auxiliary committee were to be appointed by the chairman of the National Committee on Nominations, or the committeemen of the various States, until some other method was adopted. The plan also contemplated the election or appointment of a woman as vice-chairman of every State and county committee, and in each Congressional district, and the selection of a committeewoman in each State Senatorial district, town, ward, or precinct, as associates of the male officials in those subdivisions.

A resolution favoring the enfranchisement of women through the adoption of an amendment

to the Federal constitution was adopted by a vote of 28 to 10, after a spirited debate. The resolution was proposed by Senator Jones of New Mexico, Chairman of the Women's Suffrage Committee in the Senate, who urged the committee to back the suffrage amendment, and prevail upon Democratic Senators, generally, to vote for it before the adjournment of Congress. J. Bruce Kremer, of Montana, joined Senator Jones in advocating action. Senator Saulsbury, of Maryland, General Haidman of Kentucky, and A. J. Mullen, of Nebraska opposed the resolution. They indicated a willingness to have women vote if the State should so decree, but they objected to enfranchisement through a Federal amendment. The resolution extending a greeting to President Wilson, upon his return from France, read as follows:

RESOLVED, That we, the members of the Democratic National Committee do hereby extend to President Wilson our hearty greeting upon his safe return, and tender to him and to the country our congratulation upon his great achievements in behalf of a just and enduring peace. We call upon all good citizens, irrespective of political affiliation, to support the efforts which he is making here and abroad in behalf of a world peace supported by all civilized governments. We congratulate him as commander-in-chief of the army and navy, and the officers and men of all branches of the service, upon the triumph of American arms in the greatest conflict known in history. We deprecate the attempts which are being made in various quarters to minimize the glory rightfully belonging to America, and to tarnish the honor of the army and navy by unwarranted attacks upon the Administration and upon the agencies of the nations, by means of which these great results have been achieved.

All the members of the National Committee which had been in session were the guests of the President and Mrs. Wilson at a luncheon on February 28th. The President gave the members of the committee the impression that he was looking forward to the end of his term on Mar. 4, 1921, and that after that date he contemplated a return to the writing of history. Some of the party leaders seemed to think that the only thing that could possibly induce the President to run a third time would be the defeat of the League of Nations at the hands of the Republican Senators. In a speech on March 14th, Mr. Cummings stated that the issue in 1920 would be the League of Nations. After this statement there was considerable talk of President Wilson as a third term candidate.

On March 18th, the reorganized Executive Committee of the Democratic National Committee, as announced by Mr. Homer S. Cummings, Chairman, was as follows: John Barnett, Colorado; Charles Boeschelstein, Illinois; Dr. John W. Coughlin, Massachusetts; Isidore V. Dockweiler, California; Robert Ewing, Louisiana; Carter Glass, Virginia; Cordell Hull, Tennessee; Senator A. A. Jones, New Mexico; Frederick B. Lynch, Minnesota; Norman E. Mack, New York; W. W. Marsh, Iowa; E. H. Moore, Ohio; A. F. Mullen, Nebraska; A. Mitchell Palmer, Pennsylvania, and former Senator Willard Saulsbury, Delaware.

At another meeting of the Democratic National Committee, Mr. Cummings again reiterated the statement that the League of Nations was going to be the main issue in 1920. The following resolution was passed:

We, the Democratic National Committee, recognizing the splendid service being rendered by President Wilson in behalf of a just and enduring peace, extend to him our heartfelt good wishes and congratulations, and be it

RESOLVED, That we do hereby record ourselves in favor of the prompt ratification by the Senate of the Treaty of Peace, including the covenant of the League of Nations.

At a meeting held in Atlantic City on September 26th and 27th a resolution was adopted calling on the States to ratify as soon as possible the Federal Woman Suffrage amendment. Other topics discussed were, how to raise funds for the national campaign in 1920, and how to get the new voters interested in the affairs of the party. At a later meeting it was determined to hold the Democratic National Convention of 1920 in San Francisco.

The most interesting State election, in which the Democrats were victorious, was the one held in New Jersey. Mr. Edwards, Democrat, ran on a strong anti-prohibition ticket and was elected. As a result of his success he was often mentioned as a possible candidate for the Presidency, on a "wet" platform in 1920. In the elections in New York City, Tammany Hall suffered one of the worst defeats in its history. Former Congressman La Guardia, running on a straight Republican ticket defeated his Democratic rival for the position of President of the Board of Aldermen, as did the Republican candidate for President of the Borough of Manhattan, Mr. Curran.

National Labor Party. The first annual convention of the National Labor Party was held the last week in November, 1919, at Chicago. John Fitzpatrick of Chicago addressed the convention in behalf of the organized workers of Chicago. He explained the necessity for action to meet the problems of the present day, and expressed the hope that out of the convention would result a new and better day for those who toil. A constitution was adopted which said among other things that the object of the labor party "shall be to organize all hand and brain workers of the United States, in the principles of Political, Social, and Industrial Democracy. . . . Trade Unions, farmer organizations, coöperative societies, and other organizations subscribing to the principles of the Party, may affiliate with the State or County Labor Party by paying the required per capita tax. . . . All workers over 16 years of age, without regard to race, color, sex or creed, and who subscribe to the principles of the Labor Party, are eligible to membership."

Some of the declarations of principles on which the party was founded are as follows: a league of the workers of all nations pledged and organized to enforce the destruction of autocracy, militarism, and economic imperialism throughout the world; . . . complete restoration at the earliest possible moment, of all political rights—free speech, free press, free assemblage, and the freedom of all persons imprisoned for insisting upon the exercise of these rights; industrial and political equality of the sexes; abolition of "government by injunction," which never had a legal existence in American history; the abolition of the middle men and wasteful methods of distribution of commodities; all public utilities and natural resources must be restored to the people; the Federal government must take over the banking business of the country, inasmuch as the private bank is the citadel of special privilege; education must be democratized and a real free system of public education adopted; amendments proposed by Congress must

of living, the fact that great numbers of American citizens live in want or fear of want, in spite of the country's immense wealth, the growing control of basic resources and industries by trusts which disregard alike the rights of their employees and of the public, these together constitute a denial of the right to life, liberty and the pursuit of happiness which is the heritage of all American citizens. Hence, there is profound unrest, and the conviction in the minds of earnest citizens that there can be no relief except through real constructive measures.

There is a growing realization, also, that such relief cannot be hoped for through the two old political parties. It has long been a fact, and is now beginning to be recognized, that there is no real difference between these two parties; that both are controlled by the same economic forces; that these economic forces thus constitute an invisible government, not representative of the people, and that our present two-party system leaves the country with no adequate political opposition. The country, in fact, is governed by a political monopoly.

In this situation, it is fair to say that we have reached a deadlock of democracy. We seek, therefore, to open up new channels through which the fundamental demands of the popular will, may find expression in political action, so that the economic contest may not pass into another and more serious phase.

With a view to such political action, we submit a program in the interest of all, irrespective of class, race, sex, or creed, in the hope that it may serve as a means by which the various groups of citizens who have already united in different parts of the country for independent political action, and others who feel as we do, may come together next year, in a new and great successful party.

THE PLATFORM

Public ownership of transportation, including stock yards, large abattoirs, grain elevators, terminal warehouses, pipe lines and tanks. Public ownership of other public utilities and of the principal natural resources, such as coal, oil, natural gas, mineral deposits, large water powers and large commercial timber tracts.

No land (including natural resources) and no patents be held out of use for speculation to aid monopoly. We favor taxes to force idle land into use.

Equal economic, political and legal rights for all, irrespective of sex or color. The immediate and absolute restoration of free speech, free press, peaceable assembly, and all civil rights guaranteed by the Constitution. We demand the abolition of injunctions in labor cases. We indorse the effort of labor to share in the management of industry and labor's right to organize and bargain collectively through representatives of its own choosing.

RESOLUTIONS ADOPTED BY THE CONFERENCE

Whereas, it has come to the knowledge of this Conference that there is immediate danger of the passage by the United States Senate of the Railroad Subsidy Bill, and

Whereas, the spirit and purpose of this Conference are opposed to the class of legislation represented by the Cummins and Esch bills for subsidizing and returning the railroads to private control until a settled policy of the transportation problems of the nation can be determined. Now, therefore, be it

Resolved, that it is the sense of this Conference that no legislation such as is represented in the Cummins and Esch railroad bills, should be enacted at this time; and be it further

Resolved, that we protest against the same, and that the railroads should not be returned within two years from January 1, 1920.

Resolved, that Congress should not declare war or the existence of a state of war unless authorized by vote of the people; except in case of invasion by force, and we recommend the immediate provision by Congress of legal means for determining the sense of the American people in such a contingency.

Resolved, that the spirit of militarism should not be fostered by subjecting our people to universal military training.

Resolved, that the economic blockade of Russia should be lifted at once and all military forces of the United States withdrawn forthwith from Russia.

Resolved, that political prisoners and all imprisoned in violation of their constitutional right of free speech, should be immediately released.

Resolved, that our government should make every effort to secure universal disarmament by international agreement.

FOREIGN RELATIONS. *The Jenkins Case.* During October and November, 1919, the friendly

relations existing between the United States and Mexico were strained almost to the breaking point. The general public of the United States was aroused as it had not been since the time of the Villa raid and its subsequent events. The trouble arose over the seizing and holding for ransom of an American Consular agent. William O. Jenkins, American Consular Agent at Puebla, Mexico, was kidnaped on Oct. 19, 1919, and held for 300,000 pesos ransom, which represents about \$150,000 in American money.

On October 25th, the State department, through its representative in Mexico City, demanded that the Mexican government should immediately bring about the release of Mr. Jenkins. The Embassy was also instructed to ask the Mexican government what it was doing to bring about his release. On the following day Mr. Jenkins was released through arrangements made with the bandits by his attorney. The case seemed settled as far as the United States was concerned, although there were all kinds of rumors abroad concerning the case. Friends of Jenkins claimed that the bandits who kidnaped him were in the direct employ of the Carranza government. Mexicans claimed that Jenkins and his abductor, Cordova, were in collusion, and that the kidnaping was a prearranged affair, the purpose of which was to upset the friendly relations between the United States and Mexico. Several Mexican papers went so far as to say that it was a plot on the part of American capitalists to get armed intervention in Mexico.

On November 17th, the case took an entirely new turn, largely along the lines just described. Jenkins was arrested on the charge that his abduction was a prearranged affair. His attorney, who had made arrangements for the paying of his ransom, had already been arrested on the charge on criminal complicity. Secretary of State Lansing, who apparently handled the entire Jenkins case alone, owing to the illness of President Wilson, made strong protests against this action on the part of the Mexican government. These protests were on the ground that the United States had strong evidence of his innocence. The American Embassy at Mexico City stated further that a complete investigation would be made by the American government.

On November 20th, Secretary Lansing sent a formal note to the Mexican government which demanded the release of Jenkins in no uncertain terms. It also warned the Mexican authorities that any further molestation of Jenkins would "seriously affect the relations between the United States and Mexico, for which the Mexican government must assume sole responsibility." Although this note was not an ultimatum strictly speaking, because it did not contain a time limit, nevertheless its tone was that of a serious threat. The State Department apparently asked the War Department just what steps and how many men, etc., would be necessary in dealing with Mexico. The War Department went over the matter in minute detail, which goes to bear out the semi-ultimatum tone of the note. One of the chief reasons for the note's severity was the fact that the State Department had received from Mr. Jenkins himself, an account of his abduction and his subsequent treatment at the hands of the bandits.

After several days of delay and anxious wait-



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BOLSHEVISM IN THE UNITED STATES
Some of New England's alleged "Reds" on their way to Deer Island

WAR FINANCE CORPORATION

Chairman—Carter Glass, Secretary of the Treasury.
Managing director—Eugene Meyer, Jr. (Term expires May 17, 1922.)

Directors—

William P. G. Harding, Governor of the Federal Reserve Board. (Term expires May 17, 1920.)
 Angus W. McLean. (Term expires May 17, 1922.)
Secretary-treasurer—R. Rayburn Burklin.
Acting secretary-treasurer—Eugene P. O'Daniel.
General counsel—Louis B. Wehle.
Consulting counsel—Milton C. Elliott.
Chief examiner—Herbert G. Moulton.
Chief clerk—Charles W. Hanford.
Statistician—Elisha M. Friedman.
 See WAR FINANCE CORPORATION.

UNITED STATES FUEL ADMINISTRATION

United States Fuel Administrator—Harry A. Garfield.
Executive secretary—George Edwin Howes.

ALIEN PROPERTY CUSTODIAN

Alien Property Custodian—Francis P. Garvan.
Managing director—Henry E. Ahern.
Director bureau of administration—Norman B. Dreher.
Director bureau of trusts—H. B. Caton.
General counsel—Lucian H. Boggs.

See INSURANCE and section on *Alien Enemy Property Custodian* in this article. For information on the Victory Loan, war finance, statistics of production, stock markets, new industries, and trade control, see FINANCIAL REVIEW and TAXATION. See also AERONAUTICS; INDUSTRIAL RECONSTRUCTION; LABOR; and WAR INDUSTRIES BOARD.

UNITED STATES MILITARY ACADEMY. A school for the practical and theoretical training of cadets for the military service of the United States. The earliest proposal for such an institution was made in 1776, and in the following year there was established a Corps of Invalids, "to serve as a military school for young gentlemen previous to their being appointed to marching regiments." The present academy was opened in 1802, and from that time till November, 1918, had graduated 6539 cadets. At that time two classes were graduated before the normal time, because of the war period. Since November, 1918, 816 new cadets have been admitted; and there were then 483 cadets in the fourth class. There are at present 159 instructors. The library contains 106,284 volumes. The Superintendent and Commandant is now Brig.-Gen. Douglas MacArthur, U. S. Army.

UNITED STATES NATIONAL MUSEUM. The scope of the Museum embraces many subjects which can be classed under the following headings: (1) Natural history. (2) Applied science and art (arts and industries). (3) National Gallery of Art, including the Freer collections of American and Oriental art. (4) American history. The total number of accessions received during the fiscal year 1919 was 526,845, classified and assigned as follows: Department of Anthropology, 12,333; Zoology, 442,383; Botany, 40,357; Geology and Mineralogy, 47,50; Paleontology, 26,050; Textiles, etc., 584; Mineral Technology, 62; and National Gallery of Art, 26. Three thousand and ninety-six articles were loaned for exhibition, mainly for the divisions of history and American archaeology and the Gallery of Art. Purchases were made from the Frances Lea Chamberlain funds and the Henry Ward Ranger funds.

In July, 1918, in cooperation with the War and Navy Departments, the Museum commenced the assembling and installation of a collection of material relating to the world war, which will form one of the most important ever under-

taken. Its object is to preserve and exhibit for the benefit of the public a series of objects illustrating the military and naval activities of all the countries engaged in the war. The value of such a collection cannot be overestimated, either from a popular or scientific point of view, forming not only a fit supplement to the written records relating to the history of the war, but constituting a notable memorial to the patriotic forces who took part in this great war. The collections embrace the following classes of material—general military equipment, including tanks, field and machine guns, air service equipment, represented by examples of modern airplanes; general naval equipment, such as models of modern ships, guns, and other war paraphernalia, individual military and naval equipment of the officers and enlisted men, military and naval service insignia, commemorative medals, and military and naval decorations and medals; pictures, paintings, photographs, maps, books, pamphlets, etc., and captured material of every character. The collection, comprising approximately 40,000 objects, occupies 70,000 square feet of space, and will require over 150,000 square feet with other historical material, when completely installed.

The building for the Freer collections is approaching completion, and it is expected that the installation of this unexcelled collection of American and Oriental art will be opened to the public during the year 1920.

The National Gallery of Art, which is represented by more than 9000 objects, exclusive of the Freer collection, which includes 6000 objects, received in June, 1919, a most valuable gift of 24 paintings by Guardi, Gainsborough, Lawrence, Titian, van Orley, Wilson, Rubens, Rembrandt, Cox, Lotto, Mainardi, Turner, Reynolds, Romney, Raeburn, Flinck, Maes, da Imola, and Hogarth. The Gallery is at present housed in the main north hall of the Natural History Building, but it is expected that provision will be made in a few years for a building of art and history.

The members of the staff of the Museum continued to devote much of their time to work in connection with the war until the armistice was signed in November, 1918.

The Bureau of War Risk Insurance occupied, until April, 1919, 136,000 square feet of space in the Natural History Building for office purposes, formerly devoted to exhibitions for the public. As the occupancy of this building by that Bureau closed all of the exposition halls for nine months of the fiscal year 1919, the attendance was only 132,859 for the Natural History Building and 368,036 for the Arts and Industries Building, including the Smithsonian building.

UNITED STATES NAVAL ACADEMY. Located at Annapolis, Md. At the beginning of the academic year, Oct. 1, 1919, there were enrolled 2086 midshipmen and 34 post-graduate students. The faculty numbers 250. The library contains 57,837 volumes. During the war period the course of instruction was reduced from four years to three years. In October, 1919, the four year course was resumed by the three lower classes. Bancroft Hall, the midshipmen's quarters, has recently been doubled in size. A new building, to be known as Navigation and Seamanship Building, is now in course of construction, and will be used for instructional purposes. Superintendent, Rear Admiral A. H. Scales, U. S. N.

to Johns Hopkins University for erection of a building for a woman's clinic. Knox College receives a gift of \$100,000 from Mrs. Lyman Kay Seymour. An anonymous donor of \$7,000,000 to the Massachusetts Institute of Technology has agreed to give four million if three million more is pledged toward the eight million endowment fund being raised by Jan. 1, 1920. Massachusetts Institute of Technology receives by the will of H. C. Frick, \$5,000,000. By the will of the late William Irvine, the University of Pennsylvania receives nearly \$750,000, also a gift of \$1,000,000 from the Bennett legacy for an auditorium and women's dormitory. By the will of Mr. H. C. Frick, Princeton receives \$15,000,000. Mr. George R. Eastman has given \$3,500,000 to the University of Rochester to establish the Eastman School of Music. Chas. N. Clark has left approximately \$500,000 to Smith and Mount Holyoke colleges. The Lord Stratheona gift to Yale was about \$600,000; Yale will receive \$18,000,000 from the John W. Sterling estate. This is three million more than was expected. Yale also receives \$421,233 as residuary legatee under the will of Frederick Mead. Vanderbilt University received \$4,000,000 from the General Education Board for establishing a new school of medicine at Nashville. Vassar received \$100,000 from Mrs. James H. Williams for a faculty hall which is to bear her name and \$100,000 from Mrs. Blanche Ferry Hooker and Mrs. Queenie Ferry Coonley. The University of Virginia received a gift of \$150,000 from Paul Goodloe McIntire to establish a school of art and music to be the finest in the South. The Washington University, School of Medicine, St. Louis, was given \$150,000 by the General Education Board if a like sum be raised to endow a school of pharmacology. Dr. George W. Crile has given \$100,000 to endow a chair of surgery at the Western Reserve University. The General Education Board has received a gift of \$20,000,000 from J. D. Rockefeller, all of which is to be distributed within 50 years, for improvement of medical education in the United States.

INTELLIGENCE TESTS FOR COLLEGE ADMISSIONS. Before the war it had been suggested by psychologists that intelligence examinations might be used to assist in selecting students for admission to college and that such tests might also be of value in determining the students' fitness for following certain courses while in the institution. A few experiments were conducted, but institutions in general were not convinced that the examinations possessed any marked value.

During the war many psychologists assisted the government in classifying the recruits for the army. Extensive investigations and experiments in the use of intelligence examinations were conducted. Satisfactory methods were finally developed and many thousands of young men were tested. At the close of the war the War Department and the Bureau of Education suggested to colleges and universities that these examinations or ones similar to them might be used with the returned soldiers who sought admission to their institutions. Many of the colleges and universities adopted the suggestion and in addition the examinations were used with those who sought regular admission in the fall of 1919. There has not been sufficient time to determine the efficiency of this method of ad-

mission. Thus far, however, the officers of the institutions in which it has been tried have indicated considerable confidence in its use. The faculties of various institutions are conducting extensive investigations with respect to the merits of these tests.

JUNIOR COLLEGES. Since 1907, 69 Junior Colleges have been organized. More than half of these have been organized since 1915. In a study prepared by F. M. McDowell and published as a bulletin of the Bureau of Education, four types of Junior Colleges are distinguished.

1. The junior college or lower division of the university.
2. The normal school accredited for two years of college work.
3. The public high school extended to include the first two years of college work.
4. The small private college which has limited its course to two years beyond the standard high school.

The author of the bulletin does not regard the training and experience of instructors, who now teach in Junior Colleges, as equal to that of standard colleges. Instructors are required to carry heavier schedules while the enrollment in the recitation section in the Junior Colleges is much less on an average than is to be found in the standard colleges. The author believes that the Junior College has appeared in response to certain fundamental needs and that it seems assured of a place in our educational system.

NEW PRESIDENTS. During the year 1919 the following were elected. The Rev. Clifton D. Gray was elected president of Bates College; The Rev. William Devlin was elected president of Boston College; The Rev. Emory W. Hunt was made president of Bucknell College; Dr. David P. Barrows was elected President of the University of California to succeed Pres. Benj. Ide Wheeler; Dr. George Norlin from the University of Colorado was made president to succeed President Farrand; Louis O. Lehman was elected president of Eureka College, Illinois; Dean Arthur T. Belknap of Franklin College was called to the presidency of Grand Island College, Nebraska; Dr. Daniel Russell Hodgdon was elected president of Hahnemann College and Medical School of Chicago; The Rev. Murray Bartlett, D.D., accepted the presidency of Hobart College; Dr. Charles Bray Williams was made president of Howard College, Alabama; The Rev. A. N. Evans was elected to the presidency of Howard-Payne College; Dr. Edward Smith Parsons was inaugurated as president of Marietta College; Marion LeRoy Burton was elected president of Michigan University. Prof. Alfred Atkinson succeeded J. M. Hamilton as president of the State College of Agriculture and Mechanic Arts at the University of Montana; Dr. Isaac Butler Schrechengast was installed as chancellor of Nebraska Wesleyan University; David Spence Hill was elected president of the University of New Mexico; Dr. Harry Woodburn Chase was elected president of the University of North Carolina; Dr. Lynn Harold Hough was made president of Northwestern University; Dr. William Arthur Maddox assumed the presidency of Rockford College; Willis E. Johnson succeeded Dr. E. C. Perisho as president of South Dakota College; Dr. Richard Eddy Sykes was inaugurated as president of St. Lawrence Uni-

registration for the summer session of 1919 was 724, and that of the fall was men, 1082, women, 660, a total of 1751. There were 157 members in the faculty. The library contains 68,080 bound volumes and 21,626 pamphlets. During 1919 there were erected the following buildings: a Dining Hall, a new building for the School of Mines, Stewart Hall (a model school building), and an observatory. The university was founded in 1850. President, John A. Widtsoe, Ph.D., LL.D.

UTICA, NEW YORK. See GARBAGE.

VAN DEN HEUVEL, M. Belgian representative at the Paris Peace Conference. He had had a diplomatic career and had down to a short time before represented Belgium at the Vatican where he sought to defend his country's interests against German intrigues.

VANDERBILT UNIVERSITY. An institution for higher education, at Nashville, Tenn. The enrollment in the University in the fall of 1919 was 1003, while there were about 145 members in the faculty. The library contains about 71,000 volumes. Productive funds amount to \$3,400,000; the annual income is approximately \$250,000. The institution comprises a College of Arts and Science, and Schools of Engineering, Religion, Law, Medicine, Pharmacy, and Dentistry. The school was incorporated in 1872 as Central University, but in the following year, upon a gift from Cornelius Vanderbilt of \$500,000, the name was changed to Vanderbilt University. Since that date, the Vanderbilt family has frequently and generously supported the institution. Andrew Carnegie in 1913 and 1914 gave the school of medicine \$1,000,000. In January, 1918, a campaign for \$1,000,000 to be added to the endowment of the College of Letters and Science was completed. In November, 1919, the school received a gift of \$4,000,000 from the General Board of Education, for the School of Medicine. In 1919 a School of Commerce was established. Chancellor, J. H. Kirkland, LL.D., D.C.L., Ph.D.

VANDERVELDE, EMILE. Belgian representative at the Paris Peace Conference. He was Minister of Justice in Belgium. He had had a long career in Belgian politics as a leader of the Belgian Socialists. He and his party remained loyal to the government and went into exile with it in August, 1914, after the German invasion.

VANDYKE, CARL CHESTER. Congressman, died at Washington, D. C., May 20. He was born at Alexandria, Minn., Feb. 18, 1881; served during the Spanish-American War in the Minnesota volunteers and later entered the government service as railway mail clerk. He studied law and represented the interests of the railway clerks at Washington from 1911 to 1914. He was a member of Congress from 1915 to 1919 and he was a Democrat in politics.

VAN HAMM, CALEB MARSH. Editor, died at Miami, Fla., December 27; well-known among journalists in the Eastern States. He was born at Cincinnati, Ohio, March 11, 1861, and studied law at the University of Cincinnati; served on the staff of Cincinnati papers, 1882-92, then edited the *New York Journal*, and in 1895 became city editor of the *New York World*. He was managing editor of the *World* 1903-10, when he became managing editor of the *New York American*.

VAN LOAN, CHARLES EMMET. Author, died

at Los Angeles, Cal., March 2. He was born at San José, June 29, 1876, and became a newspaper writer in Los Angeles and New York City, contributing in the meanwhile to magazines. He wrote a number of books on the subject of baseball. Among his writings may be mentioned the following: *The Big League* (1911); *The Lucky Seventh* (1913); *The Ten Thousand Dollar Arm* (1912); *Inside the Ropes* (1913); *Buck Parvin and the Movies* (1915); *Old Man Curry* (1916).

VAN TUYL, GEORGE CASEY, JR. Banker, died at Albany, N. Y., February 11. He was born at Albany, N. Y., April 3, 1872. Going into the banking business he became in 1900 the sec. and treas. of the Albany Trust Company. He was its president from 1908 to 1911 and was Superintendent of Banks of New York State from 1911 to 1914. He was also prominent in various other financial institutions of the State.

VAN ZANDT, MARIE. An American soprano, died at Cannes, France, December 31. She was born in New York City in 1860. She made her début in Turin, in 1879. From 1880 to 1885 she was a member of the Opéra-Comique in Paris, after that touring Europe. In America she sang only one season at the Metropolitan Opera House (1891-92). After her marriage to Professor Tcherinov of Moscow she retired from the stage in 1897.

VASSAR COLLEGE. A non-sectarian institution for the education of women, at Poughkeepsie, N. Y. The enrollment in 1919 was 1907, and there were 135 members in the faculty. Productive funds of the college amount to \$3,600,000. The library contains about 100,000 volumes. Vassar was founded in 1861. President, Henry Noble MacCracken, Ph.D., LL.D.

VATICAN CHOIRS. See MUSIC, *Choral Societies*.

VEGETABLES. See HORTICULTURE.

VENEREAL DISEASES. See SOCIAL HYGIENE.

VENEZUELA. A South American republic on the northern coast bounded on the east by British Guiana and on the west by Colombia. Capital, Caracas.

AREA, POPULATION, ETC. The area is estimated at 398,594 square miles; population, estimated, Dec. 31, 1917, 2,844,618; density, seven per square mile. Though the above was the official estimate it has been regarded as too high. The census of 1916 was not completed and in 1919 it was provided that it should be resumed in January, 1920, repeated in 1926, and thereafter at intervals of 10 years. Important cities with their estimated population are as follows: Caracas, about 86,880; Valencia, 54,387; Maracaibo, about 50,000. Primary education is free and nominally compulsory. No later figures are available than those given in the preceding Year Books. In 1915 it was required by law that all pupils and students in schools pass a state examination. The courses of studies are all prescribed by the state.

PRODUCTION. Recently the cultivation of coffee has become one of the chief industries. The area planted to coffee is chiefly in the northern and western regions and amounts to over 250,000 acres. As to mineral products the asphalt resources of Venezuela are among the largest in the world. They are situated in the eastern and western divisions. The western area contains a lake of asphalt with an area of

healthy animals. Negative results were obtained in experiments with the house fly, indicating that it is not an important channel in the conveyance of hog cholera from farm to farm.

FORAGE POISONING. This affection in horses, also known as cerebro-spinal meningitis and "Kansas horse disease," reappeared in Western Kansas and Eastern Colorado, causing the loss of several hundred animals.

EQUINE INFLUENZA. In coöperative work with the War Department, 507,559 horses and mules were inspected for influenza at the large horse markets by agents of the U. S. Department of Agriculture. Of these, 5341 were sent to isolation hospitals and such source of infection thus removed.

ASCARIDS. In work carried on by Ransom and Foster it was found that invasion of the lungs of pigs by the intestinal roundworm (*Ascaris lumbricoides* or *A. suum*) commonly causes pneumonia, the symptoms of which are popularly known as "thumps." Pigs which suffer from this affection may never fully recover but become unprofitable runts, weighing less than 50 lbs., and sometimes even less than 20 lbs. when they should weigh 100 lbs. The sum total of the loss throughout the country from this source is enormous. The work of the year, however, indicates that by proper methods of management such loss can be reduced on any farm to an inconsequential amount. These authors conclude that the *Ascaris ovis*, occasionally found in sheep, is merely the pig *Ascaris* in a strange host.

TRICHINÆ. Investigation carried on by Ransom and Schwartz has shown that the vitality of the larvæ of *Trichinella spiralis*, the cause of trichinosis, is quickly destroyed by exposure of the parasite to a temperature of 131° F. gradually attained, and this temperature they consider to be the thermal death point. This has led to the selection by the Federal Bureau of Animal Industry of 137° F. as the minimum temperature to which pork and products containing pork must be heated when cooked in establishments operating under the Federal meat inspection.

INSPECTION OF HORSE MEAT. The agricultural appropriation bill authorized the expenditure of \$100,000 in the inspection of horses slaughtered for food purposes. This was brought about by the growing demand for the utilization of the meat of the horse, there being many animals on the Western range too small or too wild to be of other use. Under the new regulation every establishment in which horses are slaughtered for the preparation of food products for transportation or sale in interstate or foreign commerce must be Federally inspected. The slaughter of horses and the handling of horse meat must be conducted in establishments separated from those in which other animals are killed and handled, and all horse meat and horse meat products must bear the inspection label. The fact that foreign governments will not import horse meat from the United States unless Federally inspected was one of the important reasons for the new regulation. The inspection provided for will open a market for the inferior animals, saving feed for cattle and sheep, adding hides to the leather supply and increasing meat stocks.

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Common Diseases of Farm Animals (Philadelphia, 1919); R. Edelmänn, trans. by J. R. Mohler and A. Eichhorn, *Textbook of Meat Hygiene, with Special Consideration of Ante-mortem and Post-mortem Inspection of Food-Producing Animals* (4th ed., Philadelphia, 1919); G. S. Hopkins, *Atlas of the Viscera, in Situ, of the Dairy Cow* (New York, 1919); W. J. Howarth, *Meat Inspection Problems, with Special Reference to the Developments of Recent Years* (London, 1918); C. L. McArthur, *The Attenuation of Hog Cholera Virus and Its Effect upon Normal Hogs* (Arkansas Station Bul. 139, 1917); E. Peacey, *Common Diseases of Pigs and Their Diagnosis, including Swine Fever and Its Treatment with Serum* (London, 1918); L. F. Rettger, W. F. Kirkpatrick, and L. E. Card, *Bacillary White Diarrhea.—VII, Ovarian Infection of the Adult Fowl and Transmission of the Disease through the Oviduct* (Connecticut Storrs Station Bul. 101, 1919); C. G. Saunders, *Rabbit and Cat Diseases* (Chicago, 1919); A. W. Sellards, *The Principles of Acidosis and Clinical Methods for Its Study* (Cambridge, 1917); and R. H. Smythe, *Wounds of Animals and Their Treatment* (London, 1918).

VIADUCTS. See BRIDGES.

VICTORIA. A state of the Commonwealth of Australia, lying in the southeastern part of the continent with New South Wales on the north and South Australia on the west; next to Tasmania the smallest of the Australian states. Area, 87,884 square miles; population estimated Jan. 1, 1918, at 1,411,004, being the largest population of the states of the Commonwealth with the exception of New South Wales. Capital, Melbourne, which is also the temporary capital of the Commonwealth, with a population including suburbs, at the beginning of 1918, 708,240. Other large cities are Ballarat (40,404), Bendigo (35,640), and Geelong (34,037). Legislative power is vested in a parliament of two houses, the former having 34 members elected for six years and the latter 65 members elected for three years or for the duration of the Parliament. Governor at the beginning of 1919, Sir A. L. Stanley; prime minister, H. S. W. Lawson. See AUSTRALIA.

VIRGINIA. POPULATION. The population of the State in 1910 was 2,061,612, and on July 1, 1919, it was estimated to be 2,255,036, a gain during the last 12 months of 11,000.

AGRICULTURE. The following table is compiled from a report of the federal Department of Agriculture.

Crop	Year	Acreage	Prod. Bu.	Value
Corn	1919	1,600,000	44,800,000	\$75,712,000
	1918	1,600,000	44,800,000	71,680,000
Oats	1919	240,000	5,280,000	5,280,000
	1918	225,000	5,175,000	5,175,000
Wheat	1919	1,060,000	12,508,000	28,018,000
	1918	1,050,000	12,600,000	27,594,000
Rye	1919	72,000	828,000	1,408,000
	1918	80,000	960,000	1,680,000
Tobacco	1919	230,000 a	131,100,000	62,141,000
	1918	215,000 a	165,550,000	44,698,000
Hay	1919	1,100,000	b 1,650,000	39,105,000
	1918	1,050,000	b 1,418,000	32,614,000
Peanuts	1919	139,000	5,282,000	14,420,000
	1918	140,000	5,775,000	11,723,000
Potatoes	1919	121,000	11,495,000	18,047,000
	1918	135,000	12,690,000	15,228,000
Sw. potatoes	1919	38,000	4,750,000	7,362,000
	1918	32,000	3,840,000	5,568,000
Cotton	1919	42,000	c 22,000	3,850,000
	1918	44,000	c 25,000	3,297,000

a Pounds. b Tons. c Bales.

FINANCE. The fiscal year of the Commonwealth ended Sept. 30, 1919. The receipts amounted to \$13,035,622 and expenditures were \$12,651,785. The following is the standing of the public debt as of Oct. 1, 1919:

Riddleberger bonds, 3's, due 1932	\$5,166,954
Century bonds, 2-3's, due 1992	14,835,225
School and college certificates	2,467,605
Old and unfunded	442,430
	\$22,912,215

EDUCATION. The latest available report is that for the school year 1917-18. The balance in the school funds on July 1, 1917, was \$1,034,495, and on June 30, 1918, it was \$1,042,804; the receipts for this period were \$9,163,672 and the expenditures amounted to \$9,155,363. The total salaries of teachers was \$5,162,469. The school population was 658,926, of which 222,413 were negroes. The school enrollment was, negroes 132,316, whites 348,918. The average daily attendance was, negroes 82,631, whites 234,725. The percentage attendance based on school enrollment was, negroes 62, whites 67; based on school population, negroes 37, whites 53. The schools were this year in session an average of 7.3 months. There were 10,994 white teachers and 2910 negro teachers. The average annual salary of the former was, in counties, \$348.94, in cities, \$733.56; of the latter, in counties, \$182.94, in cities, \$461.10. The percentage of illiteracy was in the counties .055 and in the cities .002.

CHARITIES AND CORRECTIONS. The following institutions are controlled by the State: Penitentiary, Richmond; State Farm, Lassiter; Central State Hospital, Petersburg; Eastern State Hospital, Williamsburg; Southwestern State Hospital, Marion; Western State Hospital, Staunton; Epileptic Colony and Colony for Feeble-minded, Madison Heights; Sanatorium for Incipient Tuberculosis, Catawba; Sanatorium for Negroes, Burkeville; School for the Deaf and Blind, Staunton; School for Colored Deaf and Blind, Newport News; Laurel Industrial School, School, P. O.; Industrial Home School for Wayward Colored Girls, Peaks Turnout; Home and Industrial School for Girls, Bon Air; Soldiers' Home, Richmond. The cost of the maintenance of these institutions is about \$4,000,000.

OFFICERS. Governor, Westmoreland Davis; Lieutenant-Governor, John Buchanan; Secretary of State, B. O. James; Treasurer, Chas. A. Johnson; Auditor, C. Lee Moore; Attorney-General, J. R. Saunders.

JUDICIARY. Supreme Court of Appeals: President, Stafford G. Whittle; Judges, Robert R. Prentiss, Joseph L. Kelly, Frederick W. Sims, Martin P. Burks.

VIRGINIA, UNIVERSITY OF. A State institution for the education of men, at Charlottesville, Va. The enrollment for the summer of 1919 was 1474 and for the winter term, 1482, with 71 professors in the faculty. Productive funds amounted to \$2,725,671, and the gross income was \$471,550. The library contains 115,000 books and pamphlets. In 1919 the School of Education was expanded into the Curry Memorial Department of Education. There was established the McIntire School of Fine Arts, through the gift of \$150,000 from Paul Goodloe McIntire. The university was founded in 1819. President, Edwin Anderson Alderman, LL.D.

VIRGIN ISLANDS. A group of small islands east of Porto Rico part of which belong to the British colony, the Leeward Islands (q.v.), and part to the United States. The American Islands are St. Thomas, St. Croix, St. John, Vieques, and Culebra, of which the three former with some 50 smaller ones, formerly the Danish West Indies, were purchased by the United States from Denmark and were formally transferred on March 31, 1917. No later statistics are available than those given by the preceding YEAR BOOK.

VIRIDITE. See MINERALOGY.

VITAL STATISTICS. Analysis of the bibliography of this subject for 1919 shows that statistics were compiled by the Federal government, chiefly through the permanent activities of the Census Bureau, some of the various State governments and leading municipalities, the great insurance companies, certain large hospitals, societies whose work comprises demography (as the American Public Health Association), and the periodicals issued by them; and private initiative. At least one good sized monograph on Vital Statistics appeared during the year by G. C. Whipple, publisher Wiley. The usual subjects were covered in 1919, and in addition some that were outgrowths of the great war and influenza pandemic. War statistics have to do chiefly with the defective physique of the drafted man and the effects of underfeeding in some of the warring countries. Of the perennial topics the increase in population and the distribution of population may be first mentioned. The Federal Census Bureau which estimates the population annually between censuses has reached the year 1918—that is has completed the year 1917. Mortality statistics have to do especially with the deaths among insured wage earners, the report of the Metropolitan Life Insurance Company, which covers a term of years, having recently been issued. The government has also published the principal causes of death in the U. S. Registration Area and the two sets of figures may be instructively compared. The deaths in those above 40 and the combined mortalities from influenza and pneumonia in the pandemic have been specially discussed during the year. Another paper deals with the general epidemic waste of human life. Under birth statistics we find accounts of the male births during the war, the ratios between birth and infant mortality—which usually vary directly with each other—the still births and the illegitimate births. Marriage statistics are not a prolific subject but the Census Bureau has issued a report on marriage and divorce and an article was published on the relation between occupation and marriage. This subject is timely, for some large business establishments see so many weddings among their employes and employées that they are spoken of as "marriage bureaus." A subject not represented is the desertions of wives by husbands. The statement is sometimes heard that the State dare not publish the full number of desertions for fear of contagion of the practice, but the severe penalties for desertion would seem to have borne fruit. Morbidity statistics are represented by reports of municipalities on the notifiable diseases recorded and one of these covering many cities was issued by the New York Health Department during the past year, along with mortalities. Various papers refer to the statistics of institutional defectives and

the position of leader of the Liberals and rising to the post of Prime Minister. He was representative of New Zealand in the British Imperial Conferences of 1907, 1909, and 1911. He joined Mr. Massey in 1915 in the formation of a coalition ministry in which he took the portfolio of finance. He represented New Zealand along with Mr. Massey in the Imperial War Cabinets of 1917 and 1918.

WAR FINANCE. This article is concerned with the flotation of war loans by some of the important countries. Such loans, while of course necessary to some extent even after the cessation of hostilities, naturally showed considerable reduction during the year 1919. Under **TAXATION** will be found an account of the other aspect of war finance. The reader is also referred to **FINANCIAL REVIEW**, the articles on the various countries, and the other articles connected with the war of the nations.

UNITED STATES. The five loans floated by the United States since 1917 were all oversubscribed. The amount allotted for the first loan was \$2,000,000,000, and \$3,035,000,000 was subscribed, with 4,000,000 subscriptions. The second loan was for \$3,000,000,000, but 9,400,000 subscribers brought total subscriptions to \$4,618,000,000. The third Liberty Loan, launched in April, 1918, when the outlook for the Allies was dark, had over 18,000,000 subscribers, and the allotment of \$3,000,000,000 was oversubscribed 38 per cent. With 21,300,000 subscribers, the enormous quota of \$6,000,000,000 for the Fourth Liberty Loan, in October, 1918, was oversubscribed 16 per cent. (See previous **YEAR BOOKS** for details of these loans.)

VICTORY LOAN. For the fifth or Victory Loan, the Secretary of the Treasury asked for only \$4,500,000,000 instead of the somewhat larger amount expected by most people. The bill passed the House Feb. 26, 1919, and the Senate on March 2d. The terms of the loan, aside from the smaller size of the issue, were all favorably regarded.

The notes were offered in two series, those which were tax-exempt (except for estate and inheritance taxes) bearing interest at 3½ per cent, and those subject to income surtaxes, excess profits and war taxes paying 4½ per cent. Both classes were issued in denominations as low as \$50, either in bearer form or registered, and either series was convertible into the other. The notes were dated May 20, 1919, and mature on May 20, 1923; they are, however, redeemable at the option of the United States on June 15th or Dec. 15, 1922, in whole or in part at par and interest on four months' notice. This redemption provision, together with the prevention of a large oversubscription by scaling down allotments, were calculated to sustain the market. Payments were made in instalments covering six months. Subscribers numbered 12,000,000, and total subscriptions amounted to \$5,250,000,000, an oversubscription of about 15 per cent. Purchases in the open market by the Treasury and the War Finance Corporation of all Liberty Bonds were continued in order to stabilize the market, total purchases by the government up to Dec. 1, 1919, amounting to over \$1,000,000,000.

WAR SAVINGS STAMPS. The aggregate amount of War Savings Stamps and certificates authorized was increased in 1919 from \$2,000,000,000 to \$4,000,000,000. Tax exemption features were

the same as in 1918, and the sale and distribution of the stamps continued as before, the Treasury Department having assumed this as a permanent function. The 1919 campaign for the sale of a new \$2,000,000,000 issue was opened January 17th, with an army of sellers. A steady decline of sales in the early months was discouraging, but monthly returns later in the year, after the floating of the Victory Loan, were indicative of more thrift on the part of the people. Total receipts from the sale of war savings and thrift stamps for the first nine months of 1919 were \$135,846,000; the total for the 12 months in which they had been available was \$1,107,751,000.

CANADA. Official results of the 1919 Victory Loan in Canada show total subscriptions of \$682,032,000, with 830,602 subscribers. The subscription of the province of Ontario was \$355,739,000. The offering was for a minimum amount of \$300,000,000, and the government upon allotment accepted about \$650,000,000 of the amount subscribed, and was thereby put in a strong financial position. About \$50,000,000 was subscribed by the United States interests. The bonds were sold at par, paying 5½ per cent and maturing in five to 15 years.

GREAT BRITAIN. The issuance of the British National War Bonds was resumed on Feb. 1, 1919. The new issue provided for 5 per cent bonds (subject to income tax) running for five and 10 years, and 4 per cent bonds (income tax compounded), running for 10 years. The 5 per cent bonds were issued at par, those maturing in five years redeemable at 102, and the 10-year bonds at 105. The 4 per cent bonds were issued at par, redeemable at par. These bonds were also offered in Canada.

Total subscriptions to the British Victory Loan or "Joy Loan" were £708,000,000, of which £539,000,000 was new money. Subscriptions to the respective issues—the 4 per cent Funding Loan and the 4 per cent Victory Bonds—were opened June 16th and were received up to July 12th. The Victory Bonds were issued at 85, and the 4 per cent Funding Loan at 80. Sinking funds were provided for the payment of both loans. Treasury bills, exchequer bonds, and National War Bonds were convertible into the new loans.

The British Treasury Bills continued to be offered in the United States throughout the year by J. P. Morgan & Co., the rate changing from 5½ to 6 per cent.

According to a statement made in the House of Commons in May, the approximate war expenditures of British colonies and dominions up to Mar. 31, 1919, were as follows: Canada, £255,454,000; Australia, £291,000,000; New Zealand, £75,750,000; South Africa, £32,950,000; Newfoundland, £1,880,000.

LOANS IN OTHER COUNTRIES. A Peace Loan of £25,000,000, bearing 5 per cent interest, was issued in Australia in August by the Commonwealth Bank. Previous to this, Australia's war loans totalled £187,000,000.

British India floated in July a 5 per cent loan of unlimited amount, payable not earlier than 1945 nor later than 1995. The bonds issued were free from all Indian income taxes, and all Indian war bonds previously issued were receivable at par for subscriptions.

Germany announced in October the issuance of a premium loan to the amount of five billion

course of nations could no longer be entrusted solely to specialists who from the nature of their work were cut off from public opinion and from other departments of government. The first discussions of the League seemed to indicate that the project would aim rather at removing the deeper causes of war than at preventing an actual outbreak of war. President Wilson returned to the United States on February 14th, where he laid the proposal of the League of Nations before the public and before Congress, presenting arguments for it, and hearing objections. The chief difficulty that first presented itself, according to the reports, was the question of sanction, that is to say, the means which the League should have for enforcing its decisions. Here there was wide divergence of view, the French advocating the vesting of the League with the right to employ armed force in the execution of its decrees, and the American and British legations favoring more limited powers. A compromise was reached on February 13th upon a draft of the constitution, which was reported unanimously to the Conference on the following day. The committee then adjourned until after President Wilson's return to Paris, when (March 18th) it resumed its sessions, and heard the representatives of neutral nations on the subject of the proposed constitution of the League. On April 10th, through the efforts of President Wilson, the committee agreed that the Covenant should not disturb present understandings for the maintenance of peace, such as the Monroe doctrine, this change being made in order to meet the criticism advanced during the President's visit to the United States. There had been much discussion as to the place for the headquarters of the proposed League of Nations. Brussels was put forward as the most suitable capital in view of Belgium's part in the war, but opinion inclined in favor of Geneva and on April 12th it was announced that Geneva had been selected by a vote of 12 to six. The committee on the League of Nations completed its work in April, agreeing upon a draft which corresponded closely to the outline published by General Smuts at the end of the preceding year. In the form in which it was discussed throughout the year 1919, it will be found below under *Covenant*.

COMMITTEES. Committees on responsibility for the war, reparations, international labor legislation, and regulation of ports and communications were also created on the same basis as that of the League of Nations committee. These committees thereupon entered into action. A large body of experts, including many from the United States, were at hand to give advice in the different fields of work. The Supreme Council applied itself at first chiefly to the consideration of the disposal of the German colonies, the settlement of the Shantung question between China and Japan, and the question of Balkan boundaries. Other special bodies of importance created early in the Conference (February 15th) were: The Supreme Economic Council, the Economic Drafting Commission, and the Final Drafting Commission, the first having charge of matters pertaining to the apportionment of shipping and of raw materials, the blockade, and the more pressing financial problems; the second, having charge of the restoration of economic intercourse, and equal trade conditions among the Allies; and the third, having charge of the enemy financial

resources. Some of the best known men of Europe and America in financial circles were engaged on these commissions.

RELATIONS WITH THE PRESS. On January 16th, the President of the United States and the prime ministers and foreign secretaries of the other powers, along with the Japanese ambassadors in Paris and London, met at the Quai d'Orsay to consider the relations with the press, and it was decided to call a meeting of the Allied press representatives for an interchange of views. On January 18th, an official statement was published in regard to the question of publicity. This was to the effect that the representatives of the Allied Powers desired that the public through the press should have the fullest information compatible with the supreme interest of all; but that publicity in regard to preliminary discussions must be subject to limitations. It was decided also that at the full meeting of the Conference representatives of the press should be admitted, but that, whenever necessary, deliberations might be held with closed doors. Comment of the newspapers from the first indicated that the interests of the press were not sufficiently respected by the rules of the Conference. It was not enough that leading delegates should periodically hold meetings with all the representatives of the press. It was said that for the regular guidance of the press each delegation should have some adequate and well-informed authority to co-operate with it. Criticism in regard to the measures taken for publicity continued throughout the Conference. The newspapers complained that the Conference leaders seemed not to understand the value or meaning of publicity. They were accused of blundering and trickery, and the bad state of affairs was attributed to jealousies and ignorance. At the outset the representatives of the press made a vigorous effort to secure better results. The leaders of the Conference seemed not to understand that their peoples really desired prompt news in regard to the Conference. Mr. Lloyd George as well as others was accused by the British press of impeding publicity.

EARLY SESSIONS. It was apparent early in the sessions of the Peace Conference that the question of freedom of the seas would have to be determined by the League of Nations, if such a body were created, and it therefore did not figure separately in the discussions. One of the first points to come before the Peace Conference was the policy of creating mandates for the former German colonies and for other territories not capable of self-government. The principle of creating mandataries over German colonies met with some opposition. For example, the Australian representatives demanded that the islands formerly possessed by Germany should be turned over without reserve to Australia, which, it was argued, needed them as a matter of national safety. On the other hand, it was held that if the League of Nations were created, and applied the principle of mandates, Australia like other Powers would without doubt receive the consideration it deserved. In short, the answer to this and other questions was the scheme for a League of Nations. At the end of January it was announced that a satisfactory arrangement of a provisional nature had been reached in regard to the German colonies and the occupied territory in Asiatic Turkey. This involved the placing of these territories and islands in the hands of designated Allied coun-

and said that unless a strong anti-Bolshevist policy was adopted the Allies would lose the fruits of their victory. It complained that there was a movement for compromise with the Bolsheviks in return for economic concessions and that this was due largely to the selfishness of financiers who were taking too active a part in the matter. A Paris correspondent of the *Times* called attention to the weakness of the Allied leaders in the face of the Bolshevik danger and contrasted M. Clemenceau's high courage and patriotism with the indecision and selfishness of some of the other Allies. This was the prevailing point of view in the Allied countries; and in a large part of the American press it was advocated with such zeal that any argument for a less aggressive attitude toward Russia was promptly attributed to anarchistic or treasonable motives. At the end of the year there were indications of a complete reversal of policy, and many influential organs of public opinion were beginning to unsay everything that they had been constantly saying. (See RUSSIA, paragraphs on *History*.)

THE SIGNING OF THE TREATY. The German delegates arrived at Versailles on May 7th and entered the Conference room early in the afternoon. They were received by a speech by M. Clemenceau which was remarkably brief, saying merely that the time had come for Germany to make reparation and to learn the terms. He concluded with the remark that the peace had been too dearly bought for the Allies not to ask for the full satisfaction which was their due. The leader of the German delegates, Count Brockdorff-Rantzau, made a reply in which he said that Germany did not underestimate the greatness of her defeat and that he knew the power of hate which they encountered at Versailles. As to the demand that they should confess themselves alone to blame for the war, he said that such a confession on his part would be a lie. He called upon the Conference to remember that while the Allies had had to wait six weeks for the armistice terms, Germany had had to wait six months for the peace conditions. The atrocities of the war had been abominable but they had at least the excuse of passion. Since the armistice a hundred thousand non-combatants had died as a result of the Allied policy of blockade. He called upon the Conference to remember this when they spoke of guilt and reparation. The treaty was not signed till June 28th. During the interval Germany tried to secure modifications, and frequent notes passed between Count von Brockdorff-Rantzau and M. Clemenceau. The German delegation on May 29th pronounced the treaty draft a "victorious violence," and said that its terms were intolerable. Meanwhile it had submitted a long document detailing a series of counter-proposals, including the following: First, as the condition of Germany's acceptance of the reduction of her standing army to 100,000 men, and the disarmament of her battleships, she demanded the retention of her merchant fleet. Second, while surrendering sovereignty over Alsace, north Schleswig, and Posen, she demanded that a plebiscite be held in those regions. Third, while agreeing to the neutralization of the Vistula, she stipulated that Danzig should become a free port, and she rejected absolutely the cession of Upper Silesia and parts of east and west Prussia without consulting the populations concerned. Fourth, she condemned the annexation

of the Saar basin to France as certain to create another Alsace-Lorraine, and demanded reconsideration of that whole question. Fifth, she requested the evacuation within six months of the occupied territory, and the right to administer her colonies as mandatory if a League of Nations were established with Germany as a member. Sixth, she demanded a neutral court to try offenses against the laws of war, and rejected "penal stipulations." Seventh, she asked that a definite sum should be fixed for reparation and the date of payment postponed, and she suggested payment of 20,000,000,000 marks before May 1, 1926, and the remainder in annual payments without interest, beginning May 1, 1927, the total not to exceed 1,000,000,000 marks a year.

The answer of the Allies to these demands was that it was in accordance with the deliberate judgment of the greater part of the civilized world that the Kaiser should be tried by an Allied tribunal; that the superior control of the Saar basin would be decided by the League of Nations, and that after 15 years the people of that region would settle the question for themselves; the German claim to the colonies was rejected; the demand for a plebiscite for Alsace was also rejected; certain modifications were made on the recommendation of Denmark in regard to the Schleswig plebiscite; Germany's objection to a plebiscite in east Prussia was characterized as inexplicable. On the other hand the Allies made the following concessions among others: That Danzig should be a free city; that a plebiscite should be held in Upper Silesia; that Germany might submit proposals in regard to reparation within four months; that the Allies would reply within two months after receiving it, and that the financial amount would then be fixed; that Germany might be admitted as a member of the League of Nations at an early date if she proved by her acts her good faith in the matter of the treaty; that she might have three months for the reduction of her army to 200,000, and that the rate at which she reduced it to the stipulated limit of 100,000 would be reviewed every three months. On June 16th the new version of the treaty incorporating all changes was handed to Germany, and she was required under threat of invasion to express her willingness to sign by June 23d. On June 20th it was learned that the German delegates, supported by their government, refused to sign; but the government fell from power immediately, and under a new ministry, headed by Herr Bauer, new envoys were appointed, Dr. Hermann Müller and Dr. Johannes Bell, who signed the treaty, June 28th, at the palace of Versailles in the *Galérie des Glaces*, the room in which the ceremonies inaugurating the German Empire had taken place after the German victory in 1871. For summarized text of treaty, see concluding section of this article.

LATER SESSIONS. The Peace Conference continued throughout the year and was in session at its close, although the United States peace delegation left Paris on December 9th. During the drafting of the Treaty with Germany and the League of Nations, a project for the protection of France against German aggression in the future was agreed upon by the representatives of France, Great Britain, and the United States. It consisted of a treaty of defensive alliance between France and each of the two other Powers, whereby the latter agreed to come to the aid of

antees were bound to be insufficient. Statistics would be falsified in advance. In the latter part of 1918 it had been reported that by order of President Ebert the war munitions would cease on December 31st, that is to say, 50 days after the armistice. During that interval she could easily have manufactured 15,000,000 of shells or at the rate of 300,000 a day, etc. There was much more to this effect. Fear of inadequate protection against the military renaissance of Germany was the motive of a vast body of French comment throughout the year.

It was reported in France toward the end of the year that there was a sharp reaction against American influence in European affairs and in some quarters a bitter feeling against President Wilson and Americans generally. Every Frenchman, it was said, believed that war would certainly recur and that France would inevitably have to fight for her life again. Hence their eagerness in the matter of alliances and all other measures to insure the future safety of the country.

A large body of French opinion in regard to the treaty and the League of Nations was fairly well represented in the report of M. Léon Bourgeois, who had been the spokesman of the element in France that favored a League of Nations, and who had for many months past been engaged in formulating plans. The report which was a document of some 200 pages was distributed among the French senators on October 7th. Space is lacking for a summary of it here, but the following points in its general conclusion may be mentioned: In the first place, the Treaty and the League were not to be regarded as ends, but as beginnings. There were many obscure clauses in both instruments and many points that needed development. To remove doubt and carry out the spirit of these undertakings there must be frequent conference among the Allies. The provisions of the instrument must be developed according to actual needs. French treaties of alliance must be completed by conventions directing their execution. Many had hoped that the League of Nations as guardian of justice and law would have a sufficient armed force at its back to secure the safety of each of its members. Pending the creation of such an international force France must remain under the régime of military alliances, and they must be made complete and effective. She must come to an understanding with Belgium on the one hand, and with Italy on the other for the organization of the defense of her western front. Although the two great Powers overseas had formed alliances with France, she must develop a continental policy. Her military frontier in reality extended from the mouth of the Escaut to the coast of the Adriatic. The sentimental union between France and Belgium should become a union in fact, and in the same way the ties with Italy should take on a definite form. Then financial agreements should be made between the Allies, for they alone would permit France to acquire the means of meeting the costs of reconstruction. The minister of finance had already proposed to the Peace Conference the creation of a financial section of the League of Nations but this was not realized and there was no knowing when it would be. Meanwhile France must act in common with her Allies with whom there had been an entire mutuality of financial interest during the war. This mutual

financial interest must continue after the peace, for it was to the interest of all concerned; the rapid recovery of France was essential to the prosperity of the world. Serious difficulties awaited the government. It must not be forgotten that the heavy burden of many wars in the past into which the nations had been dragged by violence, cupidity, and ambition, rested upon all of them, and that there were obscure motives still driving them back towards the old course of injustice. An almost superhuman effort of conscience and will was required to bring about a new attitude in humanity. The governments alone could not do this, because their daily responsibilities were too heavy, and they were in constant fear of compromising the great interests of which they had immediate charge, fearing to embark on any idealistic course lest other chiefs of state might take advantage of it. Traditional prejudices still haunt the spirits of men and habits still enslave them, and these things check remedial action. Appeal therefore must be made to the people of France itself and to the peoples of other countries, for at the bottom there was abroad in the world among the peoples a true sense of justice and solidarity. In the democracies of the West a campaign of education should be carried on in which the best intellects should take part toward directing currents of popular opinion along this line, and thus giving the governments the necessary support in a movement toward a new world order. It was not necessary that people should abandon their opinions or that political parties should disappear, but it was necessary that upon this essential point there should be accord, and that all should tolerate one another's difference in other matters. France must live and show herself stronger than ever as the result of the war. For this, rigorous economy was necessary, and work in all its forms must be resumed with energy to carry on the national production. The revolution of 1789 had established political equality among men. At the present epoch the aim was to establish social equality. There should not be a dictatorship of any one class. Justice could not proceed from a class conflict, but only from the disappearance of the causes of conflict among classes. The war had not been fought merely to substitute civil for foreign wars, and the class conflict was a civil war in all the countries in which it appeared, and involved a return of the very violence that the world had tried to suppress. French diplomacy better guided than formerly should move toward a more equitable and consistent organization of international society. France could pursue her high mission supported on the one hand by her great Allies, and on the other hand by the weaker peoples who look to her as a protector. All those young states to whose independence and new life she had contributed were her natural Allies, namely, the Poles, the Czecho-Slavs, the Jugo-Slavs, the Rumanians, and the Greeks; and they all realized that she had not come to their aid for the purpose of dominating or enslaving them.

FRANCE AND AUSTRIA. There was much comment in the American newspapers on the attitude of France toward the creation of a consolidated German state by the union of Austria and Germany, and this attitude was sharply criticized as contrary to the principle of determination by nationality. The French point of view may be outlined as follows so far as it was indicated in

of men to 100,000 and required 12 years continuous service, thus leaving Germany at the end of 15 years only 200,000 men with military training. Again, the moment a German attack began, England and America would immediately take up arms for France. Some Frenchmen argued that this would be too late, but this point of view was not generally taken seriously, for it was pointed out that France had been able to wait for her Allies even after the Germans were within striking distance of Paris; that German preparations on a large scale could hardly escape the observation of the Allies; and that the appearance of a German force anywhere within 50 kilometers of the Rhine would bring England and America to the assistance of France. To be sure Germany had her large veteran army, but after 15 years these troops would no longer be able to serve and meanwhile the French troops would retain the whole valley of the Rhine.

THE RHINE PROVINCES. The occupation of the Saar basin and the left bank of the Rhine by the French was followed by various reports and rumors as to plans on the part of the natives for an independent republic, and as to a campaign of the French for the winning over of the provinces to France. There was much written in the French press in regard to the friendliness of the population toward France. There was also much discussion all tending to show that the provinces really had no place in the German state and that closer relations with France were not only desirable, but were based on historical precedent. On the other hand there was much criticism of this attitude in the liberal press as tending to threaten the peace in the future. The arguments as presented by one of the German leaders for a movement for the independence of the Rhineland were the following: In the first place the question was compared to that of Ireland. The inhabitants to be sure speak German just as the Irish speak English, but that did not prevent a recognition of a Rhenish question just as it had been recognized that there was an Irish question. The Rhineland paid heavy taxes to Prussia and received nothing in return except a bureaucratic government. In the second place there was as much reason for recognizing the existence of an independent spirit in the Rhineland as among the Catalonians in Spain. Spain recognized that question. In the third place, if there were a war, it would certainly be fought out on the soil of the Rhineland, which would then be involved in a cause that was not its own. "Why," the French argued, "should they not be permitted to form a republic?" In the liberal press of the Allies it was suspected that their aspirations were misrepresented, and it was feared that the French were merely paving the way to plans for annexation. Along with the various accounts of the wishes of the inhabitants, and their hatred of German oppression, etc., in the French press it was noted by the liberals that no proof was assigned for these alleged conditions. As a rule the articles merely said that the inhabitants felt this way or that without citing any authority for the statement.

ITALY AND FRANCE. There was much said during the year about various proposed combinations on the Continent of the Latin or Latin and Slavic Powers against the German, and both in Italy and France there were influential groups devoted to plans for a closer union between the two countries. In France the president of the Committee

of Foreign Affairs in the Chamber had published an article calling upon the country to show Italy not by word, but by deed, that France wished to realize in the face of the German *bloc*, which was always a danger, an Allied *bloc* of 80,000,000 Frenchmen and Italians to which should be joined if desired Rumania, Portugal, and perhaps Spain. This plan was condemned by the liberal press as going back to pre-war policies based on the balance of power idea, and as taking no account of the new liberal spirit in international politics. On the other hand, it was condemned by certain French groups on the Continent as really unwise even from the point of view of that same balance of power principle. For example, M. André Chéradame, who had both during and since the war been constantly concerned with the means of blocking Pan-Germanism, attacked the plan and criticized the whole Italian policy as in reality opposed to a union among the Allied Powers. Italy herself had not practiced any such policy of union he said. For several months after the armistice, Italy had been engaged in reestablishing improved relations with the Germans, the Magyars, and the Bulgarians. Her policy had been anything but Latin and there was no reason why France should confine herself to Latin alliances. The policy of Italy had been, according to him, entirely opportunist and it was absurd to think that she was concerned with the defense of France against Germany, her former ally. Down to the end of 1917 she had been hostile to the Yugoslavs, but in April, 1918, had thought it judicious to declare herself in their favor. When the revolt of the Yugoslavs in September, 1918, won central Europe for the Allies, Italy returned to her hostile attitude toward them, indicating a purpose on her part to prevent them from fully organizing. Moreover, the countries which might form a Latin alliance, Italy, France, Rumania, Spain, and Portugal, were too much scattered for that purpose. The combination which would favor France, according to M. Chéradame, was as follows: Poland, Rumania, Greece, Czechoslovakia, Belgium, and Yugoslavia, with a total population of about 84,000,000 which with the 36,000,000 of French would form a group of 120,000,000 on the Continent alone. Such a combination would, he said, have incidentally the advantage of providing the only means of reconstituting Russia on a basis independent of Berlin. He pointed out that this alliance with the Slavs would provide an excellent means of hemming in Germany and that all these peoples had been for a long time sympathetic with France, sending their inhabitants to study in the French universities, etc. Italy might join such a group if she wished and of course it was desirable that she should do so. Italy's purpose seemed to be to balk any such combination on the part of France, and to make the situation of the Yugoslavs and the Czechoslovaks impossible. His critical views of Italian policy were shared in liberal quarters in England and the United States. But the combination which he recommended and which was said to be foreshadowed in certain French military and diplomatic policies, was condemned in the liberal press for the same reason that the Latin combination was condemned, namely, as a reversion to old imperialistic principles.

THE SHANTUNG QUESTION. It was evident early in the Conference that the Chinese repre-

meters, thus giving a density of 156 inhabitants for every 100 hectares. Moreover, Japan had done nothing without referring to the Allies. Viscount Ishii, Minister of Foreign Affairs, had obtained in February and March, 1917, the agreement of Great Britain, France, Russia, and Italy, who did not make any difficulty about approving the arrangement with China. On May 25, 1915, Japan had promised to surrender Kiaochow to China after the war on the following conditions: The whole bay to be open to international trade; a municipal Japanese concession to be granted; also a municipal international concession if the great Powers demanded; before restitution the Chinese and Japanese government to determine by common agreement the disposal of the German vessels and property.

The above account is based on arguments of M. Denys Cochin, a member of the French Academy, who advanced them against the views of M. Louis Barthou, who had taken the other side in the matter. He declared that in his opinion the Peace Conference had done well in maintaining article 158 of the treaty and he said that the exchange of views between Mr. Lansing and the Japanese Minister implied that there was no disagreement between the result and the principles of President Wilson. As to the fact that China also had eventually declared war against Germany and was therefore entitled to consideration, he said that China did not join the Allies until after three years of war, that is to say, not till August 5, 1917, and even then had not given much active support. Moreover, she found in Shantung a situation far better than that which she had created herself by her concession to Germany. Again the Allies had released her from the debt contracted to Germany after the Boxer insurrection, which had been placed in August, 1917, at 390,300,000 marks. On the whole, he did not think China had any just grievance against Japan.

The leading objections to the Japanese contentions were as follows: The incorporation of the Shantung settlement in the Treaty was one of main reasons adduced for the rejection of the Treaty by the United States Senate. The attitude of the Senate toward the provisions of the Treaty in respect to China made a deep impression on the Chinese public. The Shantung provincial assembly passed a resolution of thanks to the American Senate and followed it with an appeal to the British Parliament inviting it to take a similar action. The arguments against the Japanese position, so far as they were based on considerations of international justice, may be summed up as follows: It was admitted that European aggressions in China gave great force to the Japanese claims, and it was not denied that other Powers had followed an imperialistic policy, and with less excuse than she. But the encroachments of the Western Powers had no such danger to Chinese independence as was involved in giving a foothold in China to a neighboring nation separated by narrow waters which her fleet controlled, and already dominating China from Manchuria. On behalf of Japan it was said that at the most she only inherited rights already possessed by Germany before the war, and that China was in no worse position on that account; thus the foreign Powers who had acquiesced in the German control were inconsistent in objecting to the Japanese. To this, it was answered in the first place that one object

of the war was to put an end to the old imperialism which had expressed itself in just such acts as the German seizure of Kiaochow. In the second place, it was argued, that Germany governing from a distance was no such menace as Japan would be and that as a matter of fact she had not followed the anti-Chinese policy that Japan had pursued from the moment of her occupation. Germany, for example, employed exclusively Chinese on the railway. She did not plant a military force at Tsinan-fu, the terminus of the railway, 200 miles from Tsintao. She did not discriminate against other nations at the port or drive the Chinese out of business, or carry German economic rights beyond the terms of the treaty. Japan, it was said, on the other hand, on taking over the railway had dismissed all the Chinese employees and imported Japanese to replace them. She had stationed troops at Tsinan-fu and at almost every point on the entire line; set up barracks and wireless stations at important towns; and so dominated the railway situation in a military sense that at a moment's notice she could cut off communications between Peking and south China. As she already held the Southern Manchurian railway in the north she controlled the entire coast and could advance upon the capital whenever she chose. It was said by a Japanese liberal who protested against his government's course in China in presenting the 21 demands that already Japan had such a military grasp upon the country that she could master it within a week. In 1919 Japan installed Japanese advisers at police headquarters in Tsinan, the capital of Shantung. A Japanese consul in making a demand upon the governor surrounded the latter's house with soldiers. Japanese arrested Chinese inhabitants without the slightest vestige of legal authority to do so. A Japanese military commander was moved to warn his fellow-nationals against their present course, saying that they regarded themselves as the "proud citizens of a conquering country," that "when the Japanese go into partnership with the Chinese they manage in the greater number of cases to have the profits accrue to themselves," that "Japanese residing in China incur the hatred of the Chinese," etc. The testimony of many foreign observers was cited all to the effect that in countless small ways the Japanese were showing a determination to treat the country as their own and to keep their grasp upon it, and that the distinction between economic rights and political authority was in the circumstances absurd, for Japanese economic development in Shantung meant nothing less than complete political domination. On this latter point it was argued that all foreign aggression in China had proceeded under color of commercial and financial development. Invasions of Chinese sovereignty had always been undertaken under an economic pretext. There would be nothing left of sovereignty but the name, if Japan were left to pursue her policy of economic invasion. Out of 40 mines in the interior of Shantung which the Germans had left in the possession of the Chinese, the Japanese had, down to the close of 1919, worked their way into all but four. They had done this by various methods, especially by discrimination in the matter of railway facilities. They had acquired lands by threats, blackmail, or coercion. Incidents not important in themselves were building up a Japanese economic ascendancy

archy formed a part of the new Jugo-Slav state, opposed this, declaring that while the inner city of Fiume had an Italian majority the city as a whole, including the important suburb of Susak, had a majority of Jugo-Slavs; that moreover Fiume was the only natural outlet to the sea for Croatia and adjacent regions to the northeast and east, while Italy already had other valuable ports; and that railroads connected Fiume with the Croatian hinterland, while railway connections with Italian territory were lacking. Italian public sentiment seemed to be enthusiastically behind the demand for Fiume and at the Peace Conference the Italian delegation headed by Premier Orlando and Foreign Minister Sonnino refused to give way on the Fiume claim despite the opposition of the British, French, and American delegations. At this juncture in April President Wilson took the dramatic step of threatening to withdraw from the Conference and thereupon made public the statement of which the following contains the principal points:

"The war has ended . . . by proposing to Germany an armistice, and peace should be founded on certain clearly defined principles which set up a new order of right and justice. Upon those principles the peace with Germany not only has been conceived, but formulated. Upon those principles it will be executed. We cannot ask the great body of Powers to propose and effect peace with Austria and establish a new basis of independence and right in the states which originally constituted the Austro-Hungarian empire, and in the states of the Balkan group on principles of another kind. We must apply the same principles to the settlement of Europe in those quarters that we have applied in the peace with Germany. If those principles are to be adhered to, Fiume must serve as the outlet of the commerce, not of Italy, but of the land to the north and northeast of that port—Hungary, Bohemia, Rumania and the states of the new Jugo-Slav group. To assign Fiume to Italy would be to create the feeling that we have deliberately put the port, upon which all those countries chiefly depend for their access to the Mediterranean in the hands of a Power of which it did not form an integral part, and whose sovereignty, if set up there, must inevitably seem foreign, not domestic, or identified with the commercial and industrial life of the regions which the port must serve. It is for that reason, no doubt, that Fiume was not included in the pact of London, but there definitely assigned to the Croats."

This immediately occasioned in Italy a violent outbreak of hostility toward President Wilson despite the extraordinary popularity that he had hitherto possessed. Orlando and Sonnino left the Conference and on their return to Italy were received with great popular enthusiasm. In the Italian Chamber a vote of confidence in the government was carried by an overwhelming majority. There was great concern among the Allies over this action of the Italians as threatening to break up the Conference, but the Italian delegation finally returned at the invitation of the other members of the Conference. Negotiations on the subject continued and there were various reports of compromise, but nothing definite resulted. On June 19th, the Orlando government fell from power owing to dissatisfaction over the Fiume question and was succeeded by the government of Signor Nitti, a moderate who believed in working in coöperation with the Allies. To the Nationalists and to a large portion of the population this attitude was from the first unsatisfactory.

On September 12th began the spectacular intervention of the Italian poet and novelist Gabriele d'Annunzio, who had become a popular

idol by his valor and distinguished services during the war. At the head of a body of about 14,000 volunteers he executed a *coup d'état*, entering the city of Fiume in defiance of the protests of the Italian commandant, General Pittaluga. The Allied forces, including a British mission, withdrew on September 15th. Attempts of the Rome government to regain authority were unsuccessful and as time passed it was virtually powerless in the face of the growing strength of the sympathy in the army and in the nation with d'Annunzio's purpose. The latter on November 14th evaded the blockade and appeared at Zara, where he persuaded the commandant Admiral Millo to permit a committee of citizens to proceed on his ship to Fiume.

The Italian government in November offered a compromise which it hoped the United States could accept. In some quarters favorable to the administration in the United States acceptance was urged, not because the settlement was in all respects satisfactory, but in order to bring to a close a dangerous situation in what seemed to be the only manner that would satisfy the Italians. On the other hand the Italian proposal was attacked as unfair to the Jugo-Slavs and inconsistent with the principles of President Wilson. The matter was extremely urgent because before the close of November the Jugo-Slavs, who had shown great patience throughout, were finally reaching a point of exasperation which threatened war. The situation at the close of November may be briefly summarized as follows: In the summer of 1919 it had been proposed as a compromise that there should be an independent state with Fiume as a centre. This, however, would have interposed a southern Slav zone between this state and Italian Istria, which was offensive to Italy, because an Italian region would thus be encircled by Slavic territory, and run the risk in the future of being assimilated. Moreover, Italy insisted that there must be territorial continuity between the Italian kingdom and the municipality of Fiume. Italy demanded the extension of her Istrian frontier a little further to the east so that it should include a triangle of about 80 square kilometers, bounded by the seashore and the mountain on the one side, and by a line drawn to the east in such a way that Volosca would be surrounded. By this arrangement Italian territory would extend by a narrow strip to the city of Fiume at the end of the Gulf of Quarnero. In return the Italian government was willing to renounce nearly all the advantages that the treaty of London had promised her in Dalmatia, keeping only the three islands of Lissa, Lagosta, and Sussin, and permitting Zara to become a free city. But this triangle of 80 square kilometers according to American principles should belong to the independent state of Fiume and not to Italy. Such an arrangement seemed to indicate an ultimate design on Italy's part to annex territory that was plainly Slav, that is to say, the Volosca region. It was argued that the only solution of the question was to leave it to the decision of the population concerned. But that was precisely what the extreme partisans of an Italian Fiume would not accept. Accordingly, as the American government opposed the principle of territorial continuity, and the Italian government refused to employ force against d'Annunzio, the situation resolved itself into this dispute over a district

to the Poles than to the African negroes. They pointed out the services that the Polish nation had rendered to the Allies, namely, the work of General Pilsudski against the old Russian régime; the anonymous participation of Poles in the Czechoslovak expedition in Russia; the refusal of the Poles to take the oath of loyalty to von Bessler; the battle of Kanjow; the services of General Haller in Russia and in France; the steadiness of Poland under German tyranny and her refusal to form a national army under German pay. The writers declared that in view of their deserts they resented the wrongs that had been committed against them. They specified these wrongs as follows: The city and district of Danzig which was indispensable to the expansion of Poland had been taken away from her, contrary to the unanimous decision of the Cambon commission composed of representatives of all the Allied Powers. This had been done under the pretense that some 250,000 Germans inhabited the territory. At the same time, however, a territory inhabited by more than 3,000,000 Germans had been given to Bohemia. Moreover, this German territory as well as Hungarian districts inhabited by Slavs and Ruthenians were given to Bohemia without a plebiscite. In the case of Poland, on the other hand, a plebiscite was required for districts inhabited by an essentially Polish population, namely, the districts of Allenstein, Marienverder, and others. Further than that a plebiscite was being organized in Upper Silesia, the possession of which was indispensable to Polish development, and where according to German statistics there were 1,250,000 Poles against 650,000 Germans. This was in spite of the insurrection on the part of the people against Prussian tyranny. It was noted that the African colonies were relieved from the Prussian yoke without any plebiscite. Again the Vistula had been internationalized although it was conclusively a Polish river and watered almost half of the Polish state. Other rivers that had been internationalized did not belong in any such manner to a single state. The Poles were willing to grant navigation privileges to the Allies, who therefore would not benefit by internationalization. They declared that this measure had no precedent in history. Atrocities had been committed in Galicia by the Bolshevik mob under the incitement of Ukrainian agitators. They had been verified by an Allied commission and were fully as cruel as the atrocities of the Germans, and sometimes surpassed them in savagery. These same Ukrainian agitators, pretending to represent the entire Ruthenian people of Galicia, had placed themselves under the protection of certain governments allied to the Poles. The Allied Powers had taken under their protection that other part of the Ruthenians in Galicia who called themselves Ukrainians, who had been during the war the accomplices of Austria and Prussia. The writers maintained that the Galician Poles formed two-fifths of the native-born population; that the majority of the Ruthenians wished to remain Polish; that the development of Galicia was mainly the result of Polish efforts; that almost the whole history of that country was at one with the history of Poland; that Poland had fought on this territory in defense of Europe against the Mongols for centuries; and that Poland was again defending

Europe to-day against the Bolshevik invasion. Even the Central Powers had not dared to take eastern Galicia away from Poland. The Allies were therefore treating Poland worse than she had been treated by their enemies. Any provisional measure in Galician affairs was rejected by Polish public opinion, for the Ukrainians had chosen the war and the Poles had won it, the Entente having permitted them to carry it on. Poland refused to annul the consequences. The reports of pogroms or massacre of the Jews were all lies. Noisy rumors had been spread that from May 5th Poles had organized a pogrom in Vilna where 2000 Jews were murdered. Since then it had been proved by investigation that the whole thing was a German forgery. As to the pogrom of Lemberg, which the Jews had called a slaughter of innocent crowds, it had been shown that the Jews were armed and were shooting at Polish troops. In the reprisals which followed and which were condemned by Polish authorities 34 Jews were killed. While the Powers placed so high a value on the blood of these 34 Jews they attached little importance to the murder of thousands of Poles by the Ukrainians in Galicia. They had gone so far as to create a commission of international control for the security of the Jews themselves, imposing a limitation on Polish sovereignty. Whereas in Alsace-Lorraine only Germans who had been residents before 1871 and their descendants could enjoy civic rights, no such restriction was placed upon Germans in Poland. The Jews and foreigners in Poland possessed national minority rights. The Jews possessed privileges in Poland which they did not possess either in England or America. The diplomats of the Peace Conference had turned a deaf ear to all proposals and explanations coming from Polish delegates. They had disregarded the proposal concerning Danzig and West Prussia; they had done the same in regard to Teschen and eastern Galicia; and it seemed as if the same thing were designed to happen to any demand for justice on the part of the Poles. The writers expressed the conviction that the Allies had been treacherously deceived by false information coming from their own worst enemies, the Germans, and also by Jewish, Ukrainian, Bolshevik, and other agents. This statement of the Polish question from which it would seem that Poland, although apparently restored to the map of the world, was in a worse condition than she had been after the partitions in the eighteenth century, was signed by such important authorities as the committee of national defense, the Roman Catholic Archbishop of Lvov, the Armenian Catholic Archbishop of Lvov, the superintendent of the Protestant communities, the mayor of several large cities, presidents of leading universities, and editors of important papers.

Documents based on an exactly opposite point of view together with various rumors and reports of travelers quite as bitter against the Poles, were published largely during the year. Among such accounts for example were the various statements on the part of the Jews asserting the atrocities which the Poles denied (see article JEW) the denials and counter-accusations of Ukrainians, Germans, etc., and reports from various quarters supposed to be impartial. One of the many reports illustrating the opposite point of view was that the Poles had ravaged

Belgium. Spirit ran high in Belgium; on the other hand the Dutch were disinclined to give way, but they let it be understood that they would come to a compromise. Negotiations between Belgium and the Netherlands were in progress at the close of the year.

THE RUMANIAN QUESTION. Under *AUSTRIA-HUNGARY, History*, and *RUMANIA, History*, brief accounts will be found of the Rumanian invasion of Hungary, her disregard of the demands of her Allies, her persistence in requisitioning Hungarian property to indemnify her losses, and the repeated notes which passed between the Rumanian government and the Allied representatives at Paris in the course of the misunderstanding.

The Rumanian defiance of the Allies by disobeying the Peace Conference and remaining in the Balkan capital, Budapest was widely commented upon in the press during the summer and autumn of 1919. As noted elsewhere the various ultimatums sent to Rumania by the Allies in the Peace Conference had been disregarded. Among the reasons for this were the fact that Rumania having 300,000 troops at her disposal, compulsion of her was a serious matter. Again, the execution of the ultimatum rested with the French troops in the region and it was suspected that French authorities were not inclined to go to extremes. Also, it seemed evident that the Italians would go to the aid of the Rumanians. A lining up with what the French called the American policy might involve France in war with Italy and Rumania, both of whom she desired as allies. There was not much chance that troops would be sent from the United States or Great Britain. Accordingly there was little practical danger to the Rumanians if they did what they chose in Budapest. They therefore stayed and seized provisions and other materials equal in amount, as they declared, to what the Hungarians had stolen from them after they had entered Rumania. The most disquieting feature of the affair was the possible effect of the example, for it was argued that if Rumania could do this the precedent would be followed by other Balkan Powers. Why should not Greece for example refuse to accept the solution in regard to Thrace? Or why should not Poland disregard the demands of the Allies? Comment in the United States was severe for it was estimated that Rumania was acting of her own accord and without countenance. The affair was regarded as the first challenge against the League of Nations. Rumania, however, was not a little state. As the result of the Austria-Hungarian defeat and the Russian downfall the area of the country had become as great as that of Italy and the population was placed at 16,000,000. A portion of the American press complained that in France among the official class as well as among the Italian representatives there was a tendency to blame the United States and to a less degree Great Britain for what was considered the harsh treatment of Rumania. As Italian and French representatives on the Supreme Council had approved its action, there seemed to be no color to these accusations, but in the French and Italian press there was a disposition to find excuses for Rumania in every instance, and to oppose any effort toward keeping her within bounds.

The Rumanian point of view is brought out in

the following attempt of a French writer to review the affair impartially: The main point charged against Rumania was that, taking advantage of her situation as the sole Power capable of defending eastern Europe from Bolshevism, she had invaded Hungary, pillaged the country, and in spite of the remonstrances and direct commands of the Allies had persisted in remaining there. There were faults on both sides. In the first place Rumania had made a mistake in the beginning by claiming too much territory. Early in the Conference when the question of the Banat (see below), was brought up, M. Bratiano, the Rumanian representative, claimed for his country the whole of the Banat, including regions in which the Serbs had an immense majority. In doing so he appealed to the treaty between Rumania and the Allies, but this very treaty, he claimed, should be extended in another direction—that is to say, while going beyond the terms of the treaty in his other claims he insisted on pressing this claim on the basis of the treaty. This seemed an unfair attitude. On the other hand, while the Supreme Council had a right to provide certain guarantees on behalf of national minorities, it went too far in its minute application of this principle, and so irritated the Balkan states concerned. More important, however, was its way of treating the Magyar question, that is to say, the setting up of the Bolshevik régime at Budapest. Its policy in this respect was illustrated by the mission of General Smuts, the arrest of the military operations begun by the Czechs and Rumanians, and its laxity and hesitation in the face of the Bolshevik movement in Hungary. Bela Kun first attacked Slovakia and then turned upon Rumania. The Rumanians were at least in part justified in taking the initiative and invading Hungary. They occupied the capital and the régime of Bela Kun fell. The Rumanians pointed out that there was no other solution possible and they could not understand the ill humor of their Allies. They held that it was the latter's fault and the result of their shiftings and self-contradictions that Rumania had been obliged to take this course. Having once possessed herself of the capital Rumania undoubtedly went too far in making reprisals. It was claimed on her behalf that the so-called pillage concerning which the Allied press had so much to say was merely the recovery of what had been stolen. It was said that the very same objects which had been taken by the Hungarians from Rumania were recognized, and naturally were re-appropriated. It could not be denied that the Hungarians had robbed the Rumanians right and left when the war was in their favor and the Rumanians naturally felt justified in turning the tables when they had the chance. On the other hand this action of Rumania was directly opposed to the principle asserted by the Supreme Council that this property belonged to the Allies in command and the Rumanians were without doubt technically in the wrong, but it was argued that it was expecting too much of human nature to require the victim of a theft to refrain from helping himself to his own property when he had the chance. Unfortunately there was strong reason to believe that the Rumanians helped themselves to many things that did not belong to them. Although they had been outrageously treated during the war by

October, 1915, between the British agents, Sir H. MacMahon and the Sherif Hussein, without having had any idea that the rights of France in Syria were reserved in a much vaguer manner than those of England in Mesopotamia, where it was definitely stated that she was to have a special administrative control over all the provinces from Bagdad to Bassorak. The French press demanded a fuller explanation and especially the publication of the documents. The agreement of 1916 recognized that the four cities of Damascus, Hama, Homs, and Aleppo were to be administered by the Arabs under French influence. The French had no means of knowing at that time that the organization under the British occupation would not take such a form as to exclude French influence. Hence the Clemenceau-Allenby arrangement was coldly received. The French declared that they might not especially object to limiting the relief by the French troops to the littoral if in the interior there were a friendly power that was really accessible to French influence. As matters stood they could not believe this to be the case. At present the British method of limiting as they had done the relief by French troops gave them the appearance of protectors of the government which according to the understanding was to be advised and guided by the French, and thus they continued to act in a spirit inconsistent with the agreement of 1916.

THE CLAIMS OF GREECE. The position of Greece was indicated before the meeting of the Conference in an important statement by M. Venizelos. The Greek nation, according to him, comprises 8,250,000 inhabitants of whom only 4,300,000 live in the Greek kingdom, the others being distributed as follows: 731,000 in Thrace and in the region around Constantinople; 151,000 in Epirus and Albania; 43,000 in Bulgaria before the Balkan wars; 1,694,000 in Asia Minor; 235,000 in Cyprus; 120,000 in the Dodecanese; finally about 1,000,000 scattered in various other regions, especially in Egypt and the rest of Africa; in North and South America, and in southern Russia. Leaving out these scattered populations, whose interests naturally could not be regarded, there remained 3,000,000 Greeks who were living at present under the foreign yoke, aspiring for union with their mother country. The question was what could be done for them. In the first place, Thrace along with Constantinople with its 731,000 contained, according to Turkish figures, only about 112,000 Bulgarians. Moreover, the Bulgarians themselves had so far recognized the Greek character of Thrace that in 1912 it was necessary to collaborate with them in the matter of elections against the programme of the young Turk party for nationalizing the region, and it was understood between Greeks and Bulgarians that a political coalition should be formed in Thrace, in which seven of the candidates were to be Greeks and only one Bulgarian. Thrace therefore might appeal to the principle of nationality so often proclaimed by President Wilson and the Allied Powers during the war on behalf of its union with Greece. Such an extension of the Greek frontier would deprive Bulgaria of access to the Aegean. But the economic interest of Bulgaria is not so essential that it ought to impose on the Greeks the necessity of eternally remaining under the yoke of their neighbor. Moreover, although Bulgaria has already

a coast line on the Black Sea which under the guarantee of free passage in the straits would be open and free, Greece would consent to allow it a commercial outlet on the Aegean, and this privilege would also be granted by the other Powers. In addition to the principle of nationality, there were urgent reasons of security which constrained Greece to demand the part of Thrace, reaching from the summit of Koula, and following the course of the Arda to the Maritza, which strikes a Turco-Bulgarian frontier of 1913. The submarine campaign was a grievous lesson to the Allies. Now if the Bulgarians kept the Thracian coast, they would have an important base for their submarines at Porto Lagos, and thus threaten communications between Macedonia and the islands. At present the fate of Constantinople and consequently of its Greek population was unsettled. That population nearly equals the Turkish. Now if Constantinople was not to be returned to Greece to form the seat of an international state, destined to guarantee the liberty of the straits, the Greek national claims over the rest of Thrace would naturally be strengthened. In any case if the twelfth article of President Wilson's programme had not lost its force, Constantinople was not to remain under Turkish rule. The Turkish sovereignty then would be maintained only in the Turkish regions of the present empire, according to President Wilson's formula. It was evident then that on the same principle important regions of Asia Minor should be annexed to Greece. These regions which could justly be claimed by Greece were the vilayet of Broussa, the vilayet of Aïdin with the exception of the Sanjak of Denizli which is almost exclusively Turkish, and the islands, which are the garden spots of the coast. This would deliver about 1,188,000 of their Greek kinsmen from the Ottoman yoke, whose oppression had been worse than ever during the war. Epirus presented a delicate question. After the hasty departure of the Prince of Wied the British minister at Athens in the name of the Entente governments asked the Greek government if it would be willing to proceed to a new military occupation of north Epirus in order to maintain order. The Greek government replied that it would accept the mandate on condition that it had the consent of Italy as well as that of the Allied Powers. An agreement was reached under British influence by which Italy should occupy Vallona, and Greece north Epirus. The question of these occupations should then be left to the Peace Conference. It was tacitly understood, however, that if, after the peace, the occupation of Vallona by Italy was confirmed, the Greek occupation of Epirus should also be definitely recognized. Also by recognizing in the treaty of London of Apr. 8, 1915, Italy's right to keep Vallona, the Powers stipulated that the limits of this occupation were not to pass beyond the frontier of north Epirus to the south. North Epirus is essentially Greek. The National Committee of Control which treated in May, 1914, with the delegates from Epirus then in a state of insurrection thereby recognized that the majority was Greek. As to the islands of the eastern Mediterranean they were entirely Greek and should be returned to Greece. In regard to the Dodecanese, M. Venizelos declared that he hoped Italy would take the initiative in proposing the return of the islands to Greece,

ideas. . . . Our military forces, our lavish contributions of tanks, and other war material may temporarily bolster up the one side, but the real magnitude of the problem is quite beyond such expedients. . . . It may well be that the only ultimate hope for Russia is a sobered, purified Soviet system, and that may be far better than the Czarism to which our present policy seems inevitably tending." This point of view was that toward which the Allied governments were as a matter of fact tending at the close of the year, but at the time that he expressed it, and for many months thereafter such sentiments were condemned by a large and influential portion of the Allied press as pro-Bolshevist. In the United States, indeed throughout the entire year many persons ran the risk of prosecution for the expression of opinions not differing essentially from those expressed by General Smuts. See articles WAR FINANCE; FINANCIAL REVIEW; paragraphs on Finance under FRANCE, GERMANY, GREAT BRITAIN, etc.; INDUSTRIAL RECONSTRUCTION; and paragraphs pertaining to economic conditions and reconstruction under the respective countries.

THE TREATIES

TREATY WITH GERMANY

In the following sections are given the text of the covenant in full, the official summary of the treaty with Germany (the text being that printed by the *London Times*, and the *Political Science Quarterly*), and brief résumés of the treaties with Austria and Bulgaria.

The treaty with Germany was signed at Versailles, June 28th, by the representatives of the Allies and ratified by the German National Assembly, July 10. It was accepted by the British government, July 31; accepted by the Italian government October 7th; by the French, October 13, and by the Japanese, October 27th. It was rejected by the United States Senate, November 19th.

The Preamble, which recites shortly the origin of the War and the application of the Germans for an Armistice, enumerates the High Contracting Parties, represented by the five Great Powers—the United States of America, the British Empire, France, Italy, and Japan, together with Belgium, Bolivia, Brazil, China, Cuba, Ecuador, Greece, Guatemala, Haiti, the Hedjaz, Honduras, Liberia, Nicaragua, Panama, Peru, Poland, Portugal, Rumania, Serbia, Siam, Czechoslovakia, and Uruguay, on the one hand, and Germany on the other. The Plenipotentiaries representing these Powers are enumerated, "who, having communicated their full powers found in good and due form, have agreed as follows: From the coming into force of the present Treaty, the state of War will terminate. From that moment, and subject to the provisions of this Treaty, official relations with Germany and with each of the German States will be resumed by the Allied and Associated Powers."

SECTION I THE COVENANT

PREAMBLE. In order to promote international co-operation and to secure international peace and security by the acceptance of obligations not to resort to war; by the prescription of open, just, and honorable relations between nations; by the firm establishment of the understandings of international law as the actual rule of conduct among Governments; and by the maintenance of justice and a scrupulous respect for all treaty obligations in the dealings of organized peoples with one another, the Powers signatory to

The bill to ratify it received the royal assent on that date, but signature was delayed till October 10 in order to receive ratifications from the overseas dominions.

this Covenant adopt this Constitution of the League of Nations.

MACHINERY OF THE LEAGUE. *Article 1.* The action of the high contracting parties under the terms of this covenant shall be effected through the instrumentality of meetings of a body of delegates representing the high contracting parties, of meetings at more frequent intervals of an Executive Council, and of a permanent International Secretariat to be established at the seat of the League.

Article 2. Meetings of the Body of Delegates shall be held at stated intervals and from time to time as occasion may require for the purpose of dealing with matters within the sphere of action of the League. Meetings of the Body of Delegates shall be held at the seat of the League or at such other places as may be found convenient, and shall consist of representatives of the high contracting parties. Each of the high contracting parties shall have one vote, but may have not more than three representatives.

Article 3. The Executive Council shall consist of representatives of the United States of America, the British Empire, France, Italy, and Japan, together with representatives of four other States members of the League. The selection of these four States shall be made by the Body of Delegates on such principles and in such manner as they think fit. Pending the appointment of these representatives of the other States representatives of the other States shall be members of the Executive Council. Meetings of the Council shall be held from time to time as occasion may require, and at least once a year, at whatever place may be decided on, or failing any such decision at the seat of the League, and any matter within the sphere of action of the League or affecting the peace of the world may be dealt with at such meetings. Invitations shall be sent to any Power to attend a meeting of the Council at which matters directly affecting its interests are to be discussed, and no decision taken at any meeting will be binding on such Power unless so invited.

Article 4. All matters of procedure at meetings of the body of delegates or the executive council, including the appointment of committees to investigate particular matters, shall be regulated by the body of delegates or the executive council, and may be decided by a majority of the States represented at the meeting. The first meeting of the body of delegates and of the executive council shall be summoned by the President of the United States of America.

Article 5. The permanent secretariat of the League shall be established at ———, which shall constitute the seat of the League. The secretariat shall comprise such secretaries and staff as may be required under the general direction and control of a secretary-general of the League, who shall be chosen by the executive council. The secretaries at ——— shall be appointed by the secretary-general, subject to confirmation by the executive council. The secretary-general shall act in that capacity at all meetings of the body of delegates or of the executive council. The expenses of the secretariat shall be borne by the States members of the League in accordance with the apportionment of the expenses of the International Bureau of the Universal Postal Union.

Article 6. Representatives of the high contracting parties and officials of the League when engaged on the business of the League shall enjoy diplomatic privileges and immunities, and the buildings occupied by the League or its officials or by representatives attending its meetings shall enjoy the benefits of extraterritoriality.

ADMISSION OF NEW MEMBERS. *Article 7.* Admission to the League of States not signatories to the Covenant and not named in the protocol hereto as States to be invited to adhere to the covenant requires the assent of not less than two-thirds of the States represented in the body of delegates, and shall be limited to fully self-governing countries, including Dominions and Colonies. No State shall be admitted to the League unless it is able to give effective guarantees of its sincere intention to observe its international obligations, and unless it shall conform to such principles as may be prescribed by the League in regard to its naval and military forces and armaments.

LIMITATION OF ARMAMENTS. *Article 8.* The high contracting parties recognize the principle that the maintenance of peace will require the reduction of national armaments to the lowest point consistent with national safety, and the enforcement by common action of international obligations, having special regard to the geographical situation and circumstances of each State, and the executive council shall formulate plans for effecting such reduction. The executive council shall also determine for the consideration and action of the several Governments what military equipment and armament is fair and reasonable in propor-

of the modern world, there should be applied the principle that the wellbeing and development of such peoples form a sacred trust of civilization and that securities for the performance of this trust should be embodied in the constitution of the League. The best method of giving practical effect to this principle is that the tutelage of such peoples should be entrusted to advanced nations who, by reason of their resources, their experience, or their geographical position, can best undertake this responsibility, and that this tutelage should be exercised by them as Mandatories on behalf of the League. The character of the Mandate must differ according to the stage of the development of the people, the geographical situation of the territory, its economic conditions and other similar circumstances.

Certain communities formerly belonging to the Turkish Empire have reached a stage of development where their existence as independent nations can be provisionally recognized, subject to the rendering of administrative advice and assistance by a Mandatory Power until such time as they are able to stand alone. The wishes of these communities must be a principal consideration in the selection of the Mandatory Power. Other peoples, especially those of Central Africa, are at such a stage that the Mandatory must be responsible for the administration of the territory subject to conditions which will guarantee freedom of conscience or religion, subject only to the maintenance of public order and morals, the prohibition of abuses such as the slave trade, the arms traffic and the liquor traffic, and the prevention of the establishment of fortifications or military and naval bases and of military training of the natives for other than police purposes and the defense of territory, and will also secure equal opportunities for the trade and commerce of other members of the League.

There are territories, such as South-west Africa and certain of the South Pacific Islands, which, owing to the sparseness of their population or their small size or their remoteness from the centres of civilization or their geographical contiguity to the Mandatory State and other circumstances, can be best administered under the laws of the Mandatory State as integral portions thereof subject to the safeguards above mentioned in the interests of the indigenous population. In every case of Mandate the Mandatory State shall render to the League an annual report in reference to the territory committed to its charge. The degree of authority, control, or administration to be exercised by the Mandatory State shall, if not previously agreed upon by the high contracting parties, in each case be explicitly defined by the Executive Council in a special Act or Charter. The high contracting parties further agree to establish at the seat of the League a Mandatory Commission to receive and examine the annual reports of the Mandatory Powers and to assist the League in ensuring the observance of the terms of all Mandates.

CONDITIONS OF LABOR AND COMMERCE. *Article 20.* The high contracting parties will endeavor to secure and maintain fair and humane conditions of labor for men, women, and children both in their own countries and in all countries to which their commercial and industrial relations extend, and to that end agree to establish as part of the organization of the League a permanent Bureau of Labor.

Article 21. The high contracting parties agree that provision shall be made through the instrumentality of the League to secure and maintain freedom of transit and equitable treatment for the commerce of all States members of the League, having in mind among other things special arrangements with regard to the necessities of the regions devastated during the war of 1914-1918.

Article 22. The high contracting parties agree to place under the control of the League all international bureaus already established by general Treaties if the parties to such Treaties consent; furthermore, they agree that all such international bureaux to be constituted in future shall be placed under the control of the League.

TREATIES TO BE PUBLISHED. *Article 23.* The high contracting parties agree that every treaty or international engagement entered into hereafter by any State member of the League shall be forthwith registered with the Secretary-General and as soon as possible published by him, and that no such treaty or international engagement shall be binding until so registered.

Article 24. It shall be the right of the Body of Delegates from time to time to advise the reconsideration by States members of the League of Treaties which have become inapplicable and of international conditions of which the continuance may endanger the peace of the world.

Article 25. The high contracting parties severally agree that the present Covenant is accepted as abrogat-

ing all obligations *inter se* which are inconsistent with the terms thereof, and solemnly engage that they will not hereafter enter into any engagements inconsistent with the terms thereof. In case any of the Powers signatory hereto or subsequently admitted to the League shall, before becoming a party to this Covenant, have undertaken any obligations which are inconsistent with the terms of this Covenant, it shall be the duty of such Power to take immediate steps to procure a release from such obligations.

Article 26. Amendments to this Covenant will take effect when ratified by the States whose representatives compose the Executive Council and by three-fourths of the States whose representatives compose the Body of the Delegates.

SECTION II

THE BOUNDARIES OF GERMANY

The boundaries of Germany are described in two articles, one dealing with Germany proper and the other with East Prussia. The boundary lines between the new State of Poland and Germany and East Prussia respectively, and the new boundary line between East Prussia and Lithuania, which are shown approximately on the attached map, are described in detail in so far as they are not left to be settled by Boundary Commissions on the spot. The boundary with Belgium follows the line described in the later Section dealing with Belgium. The frontier with Luxembourg and with Switzerland is that of August, 1914. The frontier with France is that of the 18th July, 1870, with a reservation regarding the Saar. The frontier with Austria is the same as that of the 3rd August, 1914, up to the point where that of the new State of Techecho-Slovakia begins. The frontier of Techecho-Slovakia follows the old frontier between Germany and Austria up to the point where the new State of Poland begins. The boundary between Germany and Denmark and a portion of the boundary between East Prussia and Poland remain to be decided by the result of a plebiscite.

SECTION III

POLITICAL CLAUSES: EUROPE

BELGIUM. Germany is to consent to the abrogation of the Treaties of 1839 (by which Belgium was established as a neutral State and her frontiers, *fixed*), and to agree in advance to any Convention with which the Allies may determine to replace them. Germany is to recognize the full sovereignty of Belgium over the contested territory of Moresnet and over part of Prussian Morenet; and is to renounce in favor of Belgium all rights over Eupen and Malmédy, the inhabitants of which are to be entitled within six months to protest against this change either in whole or in part, the final decision to be reserved to the League of Nations. A Commission is to settle the details of the frontier, and various regulations for individual changes of nationality are laid down. Territories acquired by Belgium will be free of all obligations.

LUXEMBURG. Germany renounces her various treaties and conventions with the Grand Duchy of Luxembourg, recognizes that it ceased to be part of the German Zollverein from the 1st January last, renounces all rights of exploitation of the railways, adheres to the abrogation of its neutrality, and accepts in advance any international agreements as to it reached by the Allied and Associated Powers.

THE LEFT BANK OF THE RHINE. As subsequently provided in the Military Section, Germany must not maintain or construct any fortifications less than fifty kilometers to the east of the Rhine. In the above area Germany may maintain no armed forces, either permanent or temporary, nor hold any maneuvers, nor maintain any works for facilitating mobilization. If the provisions of this Article are violated, she shall be regarded as committing a hostile act against the signatories of the Treaty, and as intending to disturb the world's peace. By virtue of the Treaty she must respond to any request for an explanation which the Council of the League of Nations may address to her.

THE SAAR. In compensation for the destruction of coal mines in Northern France and as payment on account of reparation, Germany cedes to France full ownership of the coal mines of the Saar Basin, with their subsidiaries, accessories, and facilities. Their value will be estimated by the Reparation Commission and credited against that account. The French rights will be governed by German law in force at the Armistice, excepting war legislation, France replacing the present owners, whom Germany undertakes to indemnify. France will continue to furnish the present proportion

mark is to be fixed in accordance with the wishes of the population, a vote being taken in Northern Schleswig as a whole and in portions of Central Schleswig as communes. Ten days from the Peace German troops and authorities must evacuate the region north of the line running from the mouth of the Schlei, south of Kappel, Schleswig, and Friedrichstadt along the Eider to the North Sea south of Tonning; and Workmen's and Soldiers' Councils in the zone must be dissolved. During the voting the zone will be under the charge of an International Commission of five members, of whom the Norwegian and Swedish Governments will be invited to choose two. The Commission will temporarily have general powers of administration. After the result of the voting has been declared, the Danish Government may occupy those territories which have voted for Denmark, and Germany shall renounce sovereign rights in these territories. All the inhabitants will then acquire Danish nationality, with certain exceptions. Provisions are made for individual change of nationality under certain conditions.

HELGOLAND. The fortifications, military establishments, and harbors of the Islands of Heligoland and Dune are to be destroyed, under the supervision of the Allies, by German labor and at Germany's expense. They are not to be reconstructed, nor are any similar works to be constructed in the future.

RUSSIA. Germany is to recognize and respect the full independence of all the territories which formed part of the former Russian Empire. Germany is to accept definitely the annulment of the Brest-Litovsk Treaty and of all Treaties or Agreements of all kinds concluded by Germany since the Revolution of November, 1917, with all Governments or political groups on territory of the former Russian Empire.

The Allies reserve all rights on the part of Russia for restitution and satisfaction to be obtained from Germany on the principles of the present Treaty.

SECTION IV

POLITICAL CLAUSES OUTSIDE EUROPE

GERMAN RIGHTS OUTSIDE EUROPE. Outside Europe Germany renounces all rights, titles, and privileges as to her own or her allies' territories to all the Allied and Associated Powers, and undertakes to accept whatever measures are taken by the five Allied Powers in relation thereto.

COLONIES AND OVERSEAS POSSESSIONS. Germany renounces in favor of the Allied and Associated Powers her overseas possessions with all rights and titles therein. All movable and immovable property belonging to the German Empire or to any German State shall pass to the Government exercising authority therein. These Governments may make whatever provisions seem suitable for the repatriation of German nationals, and as to the conditions on which German subjects of European origin shall reside, hold property, or carry on business. Germany undertakes to pay reparation for damage suffered by French nationals in the Cameroons or its frontier zone through the acts of German civil and military authorities and of individual Germans from 1st January, 1900, to 1st August, 1914. Germany renounces all rights under the Convention of 4th November, 1911, and 28 September, 1912, and undertakes to pay to France in accordance with an estimate presented and approved by the Reparation Commission all deposits, credits, advances, &c., thereby secured. Germany undertakes to accept and observe any provisions by the Allied and Associated Powers as to the trade in arms and spirits in Africa, as well as to the General Act of Berlin, 1885, and the General Act of Brussels of 1890. Diplomatic protection to the inhabitants of former German colonies is to be given by the Governments exercising authority.

CHINA. Germany renounces in favor of China all privileges and indemnities resulting from the Boxer Protocol of 1901 and all buildings, wharves, barracks, forts, munitions of war, ships, wireless plants, and other public property, except diplomatic or consular establishments, in the German concessions of Tientsin and Hankow, and in other Chinese territory except Kiao-Chow, and agrees to return to China at her own expense all the astronomical instruments seized in 1900 and 1901. China will, however, take no measures for disposal of German property in the Legation quarter at Peking without the consent of the Powers signatory to the Boxer Protocol.

Germany accepts the abrogation of the concessions at Hankow and Tientsin, China agreeing to open them to international use. Germany renounces all claims against China or any Allied and Associated Government for the internment or repatriation of her citizens in China, and for the seizure or liquidation of German

interests there since 14th August, 1917. She renounces in favor of Great Britain her State property in the British concession at Canton, and of France and China jointly of the property of the German school in the French concession at Shanghai.

SIAM. Germany recognizes that all agreements between herself and Siam, including the right of extra-territoriality, ceased the 22nd July, 1917. All German public property except consular and diplomatic premises passes without compensation to Siam, German private property to be dealt with in accordance with the Economic clauses. Germany waives all claims against Siam for the seizure and condemnation of her ships, liquidation of her property, or internment of her nationals.

LIBERIA. Germany renounces all rights under the international arrangements of 1911-1912 regarding Liberia, more particularly the right to nominate a receiver of the customs, and disinterests herself in any further negotiations for the rehabilitation of Liberia. She regards as abrogated all commercial treaties and agreements between herself and Liberia, and recognizes Liberia's right to determine the status and condition of the re-establishment of Germans in Liberia.

MOROCCO. Germany renounces all her rights, titles, and privileges under the Act of Algeiras and the Franco-German Agreements of 1909 and 1911, and under all Treaties and arrangements with the Sherifian Empire. She undertakes not to intervene in any negotiations as to Morocco between France and other powers, accepts all the consequences of the French Protectorate there and renounces the capitulations. The Sherifian Government shall have complete liberty of action in regard to German nationals, and all German-protected persons shall be subject to the common law. All movable and immovable German property, including mining rights, may be sold at public auction, the proceeds to be paid to the Sherifian Government and deducted from the reparation account. Germany is also required to relinquish her interests in the State Bank of Morocco. All Moroccan goods entering Germany shall have the same privilege as French goods.

EGYPT. Germany recognizes the British Protectorate over Egypt declared on the 18th December, 1914, and renounces as from the 4th August, 1914, the capitulations and all the Treaties, Agreements, &c., concluded by her with Egypt. She undertakes not to intervene in any negotiations about Egypt between Great Britain and other Powers. There are provisions for jurisdiction over German nationals and property, and for German consent to any changes which may be made in relation to the Commission of Public Debt. Germany consents to the transfer to Great Britain of the powers given to the late Sultan of Turkey for securing the free navigation of the Suez Canal. Arrangements for property belonging to German nationals in Egypt are made similar to those in the case of Morocco and other countries. Anglo-Egyptian goods entering Germany shall enjoy the same treatment as British goods.

TURKEY AND BULGARIA. Germany accepts all arrangements which the Allied and Associated Powers make with Turkey and Bulgaria with reference to any rights, privileges, or interests claimed in those countries by Germany or her nationals and not dealt with elsewhere.

SHANTUNG. Germany cedes to Japan all rights, titles and privileges, notably as to Kiao-Chow, and the railroads, mines and cables acquired by her Treaty with China of the 6th March, 1898, and by other agreements as to Shantung. All German rights to the railroad from Tsingtao to Tsinaufu, including all facilities and mining rights and rights of exploitation, pass equally to Japan, and the cables from Tsingtao to Shanghai and Chefoo, the cables free of all charges. All German State property, movable and immovable, in Kiao-Chow is acquired by Japan free of all charges.

SECTION V

MILITARY, NAVAL, AND AIR CLAUSES

"In order to render possible the initiation of a general limitation of the armaments of all nations, Germany undertakes directly to observe the military, naval and air clauses which follow."

MILITARY. The military terms provide for the demobilization of the German Armies and the imposition of other military restrictions, within two months of the signing of the Treaty (as the first step towards international disarmament). All compulsory military service is to be abolished in German territory, and recruiting regulations on a voluntary basis are to be incorporated into the German military laws, providing for the enlistment of non-commissioned officers and men for a period of not less than twelve consecutive years, and

nexion with them, agreeing also to give any practicable facilities for removal and reburial.

SECTION VII

RESPONSIBILITIES FOR THE CRIMES OF THE WAR

The Allies publicly arraign the ex-Emperor William II. "for a supreme offence against International Morality and the Sanctity of Treaties."

The ex-Emperor's surrender is to be asked for from the Dutch Government, and a special Tribunal is to be set up, consisting of one judge from each of the five Great Powers. The Tribunal is to be guided by the highest principles of international policy, and is to have the duty of fixing whatever punishment it thinks should be imposed. Military Tribunals are to be set up by the Allies to try persons accused of acts of violation of the laws and customs of war, and the German Government is to hand over all persons so accused. Similar Tribunals are to be set up by any particular Allied Power against whose nationals criminal acts have been committed. The accused are to be entitled to name their own counsel, and the German Government is to undertake to furnish all documents and information the production of which may be necessary.

SECTION VIII

REPARATION AND RESTITUTION

"The Allied and Associated Governments affirm, and Germany accepts on behalf of herself and her Allies, the responsibility for causing all the loss and damage to which the Allied and Associated Governments and their nationals have been subjected as a consequence of the war imposed upon them by the aggression of the enemy States."

While the grand total of damages assessed against Germany may exceed her ability to pay, she undertakes to make compensation for all damages caused to civilians under seven main categories:—

- (a) Damage by personal injury to civilians caused by acts of war, directly or indirectly.
- (b) Damage caused to civilians by acts of cruelty ordered by the enemy, and to civilians in the occupied territories.
- (c) Damages caused by maltreatment of prisoners.
- (d) Damages to the Allied peoples represented by pensions and separation allowances, capitalized at the signature of this Treaty.
- (e) Damages to property other than naval or military materials.
- (f) Damage to civilians by being forced to labour.
- (g) Damages in the form of levies or fines imposed by the enemy.

The total obligation of Germany to pay, as defined in the category of damages, is to be determined and notified to her after a fair hearing and not later than 1st May, 1921, by an Inter-Allied Reparation Commission. At the same time a schedule of payments to discharge the obligation within thirty years shall be presented. These payments are subject to postponement in certain contingencies. Germany irrevocably recognizes the full authority of this Commission, agrees to supply it with all the necessary information and to pass legislation to effectuate its findings. She further agrees to restore to the Allies cash and certain articles which can be identified.

As an immediate step towards restoration, Germany shall pay within two years 20,000,000,000 marks in either gold, goods, ships, or other specific forms of payment, with the understanding that certain expenses, such as those of the armies of occupation and payments for food and raw materials, may be deducted at the discretion of the Allies.

"In periodically estimating Germany's capacity to pay, the Reparation Commission shall examine the German system of taxation, first, to the end that the sums for reparation which Germany is required to pay shall become a charge upon all her revenues, prior to that for the service or discharge of any domestic loan, and secondly, so as to satisfy itself that in general the German scheme of taxation is fully as heavy proportionately as that of any of the Powers represented on the Commission."

"The measures which the Allied and Associated Powers shall have the right to take, in case of voluntary default by Germany, and which Germany agrees not to regard as acts of war, may include economic and financial prohibitions and reprisals, and in general such other measures as the respective Governments may determine to be necessary in the circumstances."

The Commission shall consist of one representative each of the United States, Great Britain, France, Italy, and Belgium, with all other Allied Powers entitled,

when their claims are under consideration, to the right of representation without voting power. It shall permit Germany to give evidence regarding her capacity to pay, and shall assure her a just opportunity to be heard. It shall make its headquarters at Paris; establish its own procedure and personnel; have general control of the whole reparation problem; and become the exclusive agency of the Allies for receiving, holding, selling, and distributing reparation payments. Majority vote shall prevail except that unanimity is required on questions involving the sovereignty of any of the Allies, the cancellation of all or part of Germany's obligations, the time and manner of selling, distributing, and negotiating bonds issued by Germany, any postponement between 1921 and 1926 of annual payments beyond 1930, and any postponement after 1926 for a period of more than three years, the application of a different method of measuring damage than in a similar former case, and the interpretation of provisions. Withdrawal from representation on the Commission is permitted upon twelve months' notice.

The Commission may require Germany to give from time to time, by way of guaranty, issues of bonds or other obligations to cover such claims as are not otherwise satisfied. In this connexion and on account of the total amount of claims, bond issues are presently to be required of Germany in acknowledgment of its debt as follows:—20,000,000,000 marks gold, payable not later than the 1st May, 1921, without interest; 40,000,000,000 marks gold bearing 2½ per cent. interest between 1921 and 1926, and thereafter 5 per cent. with a 1 per cent. sinking fund payment beginning in 1926, and an undertaking to deliver 40,000,000,000 marks gold bearing interest at 5 per cent. under terms to be fixed by the Commission.

Interest on Germany's debt will be 5 per cent. unless otherwise determined by the Commission in the future, and payments that are not made in gold may "be accepted by the Commission in the form of properties, commodities, businesses, rights, concessions, &c." Certificates of beneficial interest, representing either bonds or goods delivered by Germany, may be issued by the Commission to the interested Power, no Power being entitled, however, to have its certificates divided into more than five pieces. As bonds are distributed and pass from the control of the Commission, an amount of Germany's debt equivalent to their par value is to be considered as liquidated.

SHIPPING

The German Government recognizes the right of the Allies to the replacement, ton for ton and class for class, of all merchant ships and fishing-boats lost or damaged owing to the war, and agrees to cede to the Allies all German merchant ships of 1,600 tons gross and upwards, one-half of her ships between 1,600 and 1,000 tons gross, and one-quarter of her steam trawlers and other fishing-boats. These ships are to be delivered within two months to the Reparation Commission, together with documents of title evidencing the transfer of the ships from encumbrance.

"As an additional part of reparation," the German Government further agrees to build merchant ships for the account of the Allies to the amount of not exceeding 200,000 tons gross annually during the next five years.

All ships used for inland navigation taken by Germany from the Allies are to be restored within two months, the amount of loss not covered by such restitution to be made up by the cession of the German river fleet up to 20 per cent. thereof.

DEVASTATED AREAS

Germany undertakes to devote her economic resources directly to the physical restoration of the invaded areas. The Reparation Commission is authorized to require Germany to replace the destroyed articles by the delivery of animals, machinery, &c., existing in Germany, and to manufacture materials required for reconstruction purposes—all with due consideration for Germany's essential domestic requirements.

SPECIAL PROVISIONS

Germany is to restore within six months the Koran of the Caliph Othman, formerly at Medina, to the King of the Hedjaz, and the skull of the Sultan Mkwawa, formerly in German East Africa, to His Britannic Majesty's Government.

The German Government is also to restore to the French Government certain papers taken by the German authorities in 1870, belonging then to M. Rouher, and to restore the French flags taken during the war of 1870-71.

as from the date at which the parties became enemies. Exception is made in the case of agreements for the transfer of real or personal property, where the property therein had already passed, leases of land and houses, contracts of mortgage, pledge or lien, mining concessions, contracts with Governments and public bodies, and insurance contracts. In regard to the last-named class of contracts, detailed provision is made, as indicated below.

Powers are reserved for the maintenance of contracts, the execution of which is regarded by an Allied State as in the general interest, subject, if necessary, to the payment of equitable compensation to be fixed by the Mixed Arbitral Tribunal.

Having regard to constitutional difficulties in the case of the United States of America, Brazil, and Japan, these countries are excepted from the provisions relating to pre-war contracts.

Fire-insurance contracts are not considered dissolved by the war, even if premiums have not been paid, but lapse at the date of the first annual premium falling due three months after the Peace. Life insurance contracts are not dissolved merely by reason of the war, but where they have lapsed the surrender value may be claimed, or if the lapse was due to payment of premiums being prevented by the enforcement of measures of war the contract may be restored on payment of premiums with interest. Marine insurance contracts are dissolved by the outbreak of war, except where the risk had already attached. Where the same risk was again insured against, after war had begun, the new policy is to be considered as substituted for the old. Where the risk had not attached at the outbreak of war, premiums paid are recoverable. The insurance treaties are abrogated unless invasion has made it impossible for the reinsured to find another re-insurer. Any Allied or Associated Power, however, may cancel all the life-insurance contracts running between its nationals and a German insurance or re-insurance company, the latter being obliged to hand over the proportion of its assets attributable to such policies.

A Mixed Arbitral Tribunal is to be established between each of the Allies and Germany, consisting of one Member appointed by each of the two Governments, and a President to be chosen, failing agreement, by the Council of the League of Nations, or until this is set up, by the present President of the Swiss Federal Council. This Tribunal is to decide all disputes relating to contracts made before the date of the Treaty of Peace between nationals of the Allied States and German nationals, so far as they do not fall within the jurisdiction of Allied or Associated or Neutral Courts.

INDUSTRIAL PROPERTY. Rights in industrial, literary, and artistic property are re-established, but subject, in the case of German-owned rights, to the effect of the special war measures of the Allies, the right of imposing on German patents and copyrights conditions in the public interest or to secure the fulfilment of Germany's obligations is reserved. Extensions of time are given for the accomplishment of formalities, for the working of patents, and for securing rights under the international conventions. Except as between the United States of America and Germany, pre-war licenses are cancelled, subject to the right of the old licensee to demand a new license on terms to be specially settled; and except as between the same countries, the right to sue for infringement committed during the war is not recognized.

OPIMUM. The High Contracting Powers who have not signed or ratified the Opium Convention of 1912 agree to bring it into force.

SECTION XI

AERIAL NAVIGATION

Aircraft of the Allied and Associated Powers shall have full liberty of passage and landing over and in German territory, equal treatment with German planes as to use of German airdromes, and with most-favored-nation planes as to internal commercial traffic in Germany. Germany agrees to accept Allied certificates of nationality, airworthiness, or competency and licenses, and to apply the convention relative to Aerial Navigation concluded between the Allied and Associated Powers to her own aircraft over her own territory. These rules apply until 1923 unless Germany has since been admitted to the League of Nations or to the above Convention.

SECTION XII

PORTS, WATERWAYS AND RAILWAYS

Germany is required to grant freedom of transit and full national treatment to persons, goods, vessels, rolling stock, &c., coming from or going to any Allied or Associated State and passing in transit through German

territories. Goods in transit are to be free of Customs duties. Rates of transport are to be reasonable and no charges or facilities are to depend directly or indirectly on the flag of the vessel. Provisions are made against discrimination by control of transigrant traffic; and all kinds of indirect discrimination are prohibited.

International transport is to be expedited, particularly for perishable goods. There is to be no discrimination in transport charges and facilities against Allied ports.

Free zones in German ports are to be maintained, and adequate facilities are to be provided for trade requirements without distinction of nationality. Only certain limited charges are permissible in Free Ports.

The Elbe, from the junction of the Vltava (Moldau) and the Vltava below Prague; the Oder, from its confluence with the Oppa; the Niemen, below Grodno; and the Danube, below Ulm, are declared international, together with the portions of their affluents. National property and flags of all States are to be treated on a footing of perfect equality with subjects, &c., of the riparian States, and various conditions are imposed to ensure facilities and reasonable charges and the maintenance of navigation, under the supervision of the League of Nations, and of International Commissions. These are to meet in the near future to prepare projects for the revision of the existing agreements, which are temporarily to remain in force.

Germany is to hand over within three months from notification a proportion of its river shipping, tugs, and material.

In the case of the Danube, the former Commission is to resume its pre-war powers, but only Great Britain, France, Italy, and Rumania are to be represented on it. From the point where the competence of the Commission ceases, an International Commission is to be appointed to administer the whole Upper Danube, until a definitive Statute is arrived at.

Provision is also made for a deep-draught Rhine-Danube Canal, should it be decided to construct it within twenty-five years.

The Rhine and Moselle form the subject of a special series of clauses. The Convention of 1868 is in general to remain in force with important modifications: the expanded Central Commission is to sit at Strasbourg, France, to name the President. As Holland is a party to this Convention, the modifications are subject to her assent.

Within three months, Germany is to hand over to France a proportion of tugs and river shipping from the Rhine harbours, or shares in German navigating companies. A proportion of buildings, tugs, &c., owned by Germans in Rotterdam harbour on the 1st August, 1914, or shares in such concerns, is similarly to be handed over.

France is to have full rights all along her own frontier to use water from the Rhine for canals, &c., and to carry out works for deriving motive power, subject to certain payments and to the consent of the Commission.

Germany is to undertake to make no canals on the right bank opposite the French frontier, and to grant France certain privileges on the right bank for the establishment of certain engineering works subject to the payment of compensation. Switzerland is also entitled to demand similar rights for the upper part of the river.

If within 25 years Belgium decides to construct a Rhine-Meuse Canal, the German Government is bound to construct such parts of it as fall within German territory, according to plans drawn up by the Belgian Government, expenses to be divided among the various States.

Germany is to make no objection to the Commission extending its jurisdiction if desired to the Lower Moselle (with the consent of the Luxembourg Government), to the Upper Rhine (with the consent of the Swiss Government), and to the lateral canals and waterways which may be constructed to improve navigation.

The German Government is to lease to the Tchecho-Slovak Republic, for 99 years, areas in the harbours of Hamburg and Stettin as free zones.

RAILWAYS. The Railway Clauses provide that goods consigned from or to Allied States or from Germany, or in transit through Germany, are entitled generally to the most favourable conditions available. Certain railway tariff questions are dealt with.

When a new Railway Convention has replaced the Berne Convention of 1890, it will be binding on Germany; in the meantime she is to follow the Berne Convention.

Germany is to cooperate in the establishment of passenger and luggage services with direct booking between Allied States over her territory, under favourable conditions, as well as emigrant train services.

possible. Various diplomatic provisions as to ratification follow. The Treaty is to enter into force in all respects for each Power on the date of deposit of its ratification.

TREATY WITH AUSTRIA

The treaty with Austria had been formulated slowly and was not complete when it was handed to the Austrian delegation on June 2d, but still lacked specific provisions in regard to finance, reparation, and boundaries. The text was completed and supplied in full to the Austrian delegates on July 20th, and 15 days were allowed them in which to submit objections. It was ratified by the Austrian National Assembly, October 17th, and signed by the President of the Austrian Republic, October 26th. The Austrian treaty followed in many respects the same lines as the treaty with Germany. It recognized Austria as a republic with virtually the old frontiers on the side of Bavaria, Bohemia, and Hungary, but the Trentino, Carinthia, southern Tirol, and the lower part of Styria were recognized as belonging to Italy and Jugo-Slavia. It was stipulated that Austria should recognize the independence of the new states formed within her ancient borders and also those which constituted a part of the former Russian empire. There were elaborate provisions for the protection of national minorities. In the matter of disarmament Austria was required to surrender her entire navy together with arms and munitions, and she was forbidden to reconstruct or possess military, naval, or air forces. She was restricted to a volunteer force of 30,000 men. She must repair the damages in the invaded regions in accordance with terms to be fixed by the reparation commission, organized under the treaty with Germany. The principal war debt of the Austrian empire was to be apportioned among the states as they existed at present after the dismemberment of the empire. Compensation was to be made to the Allies for ships lost or destroyed in the war. Records, documents, or treasures, etc., taken from invaded or ceded territories must be restored.

THE BULGARIAN TREATY

The treaty with Bulgaria was signed at Neuilly near Paris, November 27th. First, in respect to the financial provisions. The debt to Germany valued at between 3,000,000,000 and 4,000,000,000 francs was abolished by the treaty. The total indemnity imposed was 2,250,000,000 francs, which included all the reparations for the devastation and pillage of Serbia, Rumania, and Greek Macedonia. An inter-Allied commission on reparations was to sit at Sofia and direct the return of the goods taken from the Allies but was not to charge for the damages caused. In this commission the neighboring countries to Bulgaria were not represented. No arrangement was made for the payment of indemnities to individual powers; For example, Serbia was to receive only her share of the total indemnity. This was criticized by friends of Serbia as unjust and that was the attitude assumed in the French press which also complained that Bulgaria retained too much of her territory. French papers pointed out that on the side of Rumania, the frontier of 1913 remained unchanged; on the side of Serbia there was a mere straightening of the lines; in the north a change of a few kilometers; a little further to the south there were some slight

cessions; that at the extreme south the salient of Strumitza along with the city of that name passed to Serbia; that in short the only important cession was that of a large part of Thrace, acquired by the Bulgarians in 1913, and inhabited largely by Greeks and Turks. This was taken from Bulgaria but its status was left for future decision.

SENATE RESERVATIONS ON PEACE TREATY

The resolution of ratification of the Peace Treaty, rejected November 19, is as follows:

Resolved (two-thirds of the Senators present concurring therein), That the Senate advise and consent to the ratification of the treaty of peace with Germany concluded at Versailles on the twenty-eighth day of June, 1919, subject to the following reservations and understandings, which are hereby made a part and condition of this resolution or ratification, which ratification is not to take effect or bind the United States until the said reservations and understandings adopted by the Senate have been accepted by an exchange of notes as a part and a condition of this resolution of ratification by at least three of the four principal allied and associated powers, to wit, Great Britain, France, Italy, and Japan:

1. The United States so understands and construes Article I that in case of notice of withdrawal from the League of Nations, as provided in said article, the United States shall be the sole judge as to whether all its international obligations and all its obligations under the said covenant have been fulfilled, and notice of withdrawal by the United States may be given by a concurrent resolution of Congress.

2. The United States assumes no obligation to preserve the territorial integrity or political independence of any other country or to interfere in controversies between nations—whether members of the League or not—under the provisions of Article 10, or to employ the military or naval forces of the United States under any article of the treaty for any purpose, unless in any particular case the Congress, which, under the Constitution, has the sole power to declare war or authorize the employment of the military or naval forces of the United States, shall by act or joint resolution so provide.

3. No mandate shall be accepted by the United States under Article 22, Part I, or any other provision of the treaty of peace with Germany, except by action of Congress.

4. The United States reserves to itself exclusively the right to decide what questions are within its domestic jurisdiction and declares that all domestic and political questions relating wholly or in part to its internal affairs, including immigration, labor, coastwise traffic, the tariff, commerce, the suppression of traffic in women and children, and in opium and other dangerous drugs, and all other domestic questions, are solely within the jurisdiction of the United States and are not under this treaty to be submitted in any way either to arbitration or to the consideration of the Council or of the Assembly of the League of Nations, or any agency thereof, or to the decision or recommendation of any other power.

5. The United States will not submit to arbitration or to inquiry by the Assembly or by the Council of the League of Nations, provided for in said treaty of peace, any questions which in the judgment of the United States depend upon or relate to its long-established policy, commonly

known as the Monroe Doctrine; said doctrine is to be interpreted by the United States alone and is hereby declared to be wholly outside the jurisdiction of said League of Nations and entirely unaffected by any provision contained in the said treaty of peace with Germany.

6. The United States withholds its assent to Articles 156, 157, and 158, and reserves full liberty of action with respect to any controversy which may arise under said articles between the Republic of China and the Empire of Japan.

7. The Congress of the United States will provide by law for the appointment of the representatives of the United States in the Assembly and the Council of the League of Nations, and may in its discretion provide for the participation of the United States in any commission, committee, tribunal, court, council, or conference, or in the selection of any members thereof and for the appointment of members of said commissions, committees, tribunals, courts, councils, or conferences, or any other representatives under the treaty of peace, or in carrying out its provisions, and until such participation and appointment have been so provided for and the powers and duties of such representatives have been defined by law, no person shall represent the United States under either said League of Nations or the treaty of peace with Germany, or be authorized to perform any act for or on behalf of the United States thereunder, and no citizen of the United States shall be selected or appointed as a member of said commissions, committees, tribunals, courts, councils, or conferences except with the approval of the Senate of the United States.

8. The United States understands that the Reparation Commission will regulate or interfere with exports from the United States to Germany, or from Germany to the United States, only when the United States by act or joint resolution of Congress approves such regulation or interference.

9. The United States shall not be obligated to contribute to any expenses of the League of Nations, or of the secretariat, or of any commission, or committee, or conference or other agency, organized under the League of Nations or under the treaty or for the purpose of carrying out the treaty provisions, unless and until an appropriation of funds available for such expenses shall have been made by Congress.

10. If the United States shall at any time adopt any plan for the limitation of armaments proposed by the Council of the League of Nations, under the provisions of Article 8, it reserves the right to increase such armaments without the consent of the Council whenever the United States is threatened with invasion or engaged in war.

11. The United States reserves the right to permit, in its discretion, the nationals of a covenant-breaking State, as defined in Article 16 of the covenant of the League of Nations, residing within the United States or in countries other than that violating said Article 16, to continue their commercial, financial, and personal relations with the nationals of the United States.

12. Nothing in Articles 296, 297, or in any of the annexes thereto or in any other article, section, or annex of the treaty of peace with Germany shall, as against citizens of the United States, be taken to mean any confirmation, ratification, or approval of any act otherwise illegal or in contravention of the right of citizens.

13. The United States withholds its assent to

Part XIII. (Articles 387 to 427, inclusive) unless Congress by act or joint resolution shall hereafter make provision for representation in the organization established by said Part XIII., and in such event the participation of the United States will be governed and conditioned by the provisions of such act or joint resolution.

14. The United States assumes no obligation to be bound by any election, decision, report, or finding of the council or assembly in which any member of the League and its self-governing dominions, colonies, or parts of empire, in the aggregate have cast more than one vote, and assumes no obligation to be bound by any decision, report, or finding of the council or assembly arising out of any dispute between the United States and any member of the League if such member, or any self-governing dominion, colony, empire, or part of empire united with it has voted.

WARREN, HENRY PITT. Educator, died at Albany, N. Y., May 27. He was born at Windham, Me., Mar. 21, 1846, and graduated at Yale in 1870. He taught in schools in New Hampshire and New Jersey, and was headmaster of the Albany Academy.

WAR TRADE BOARD. The signing of the armistice did not at once bring to a close the activities of the War Trade Board but rather provided ample opportunity for its continued usefulness. The Board was created by executive order on Oct. 12, 1917, under the Trading with the Enemy Act. The Departments of State, the Treasury, Agriculture and Commerce were represented on the board, as were the Food Administration and Shipping Board. It had representatives in important neutral and allied countries. The board was divided into 10 bureaus: administration, imports, exports, transportation, enemy trade, foreign agents, research and statistics, branches and customs, war trade intelligence and the division of information. After February, 1918, all imports and exports were subjected to the rules of the board. Under its regulations it permitted the shipment of foodstuffs and other essentials to neutral nations in need, provided those countries guaranteed that the commodities would not be re-shipped into enemy countries. The Board established an Export Conservation List on which it placed all commodities for which special individual licenses were required for exportation. Through the Information Division, the Board issued the *War Trade Board Journal*, giving details of new rulings, etc.

Upon the signing of the armistice the Board gradually removed commodities from the Export Conservation List and increased those on the Free List. The policy of the Board was to encourage the resumption of normal trade relations as soon as possible. This policy was reflected in its reduction of the Export Conservation List and Restricted Imports List and the neutral countries of northern Europe were thereby greatly aided. Meanwhile the import rules of England were relaxed and other countries followed her example.

On May 12, 1919, the personnel, powers, duties and records of the War Trade Board were transferred to the Department of State as of July 1, 1919, by order of the President. All licenses previously issued by the board continued to be valid except for the importation or exportation of wheat or wheat flour. War Trade Board ruling 797 announced that effective July 1, 1919

institution for the education of women, at Wellesley, Mass. The total enrollment in the fall of 1919 was 1529; there were 189 officers of instruction and government, 140 being of the teaching staff. Endowment funds, exclusive of Building and Equipment funds, \$2,899,935; income, \$137,054. The library contains 87,696 volumes. A new recitation hall, Founders Hall, was completed and occupied in September. This replaces in part the facilities lost in the burning of College Hall, March, 1914. Wellesley College is one of the beneficiaries of the will of Mrs. Russell Sage; the exact amount of the gift is yet undetermined. At commencement, 1919, an anonymous gift was made to endow a professorship of English Literature. Wellesley was founded in 1875. President, Miss Ellen Fitz Pendleton, Litt.D., LL.D.

WELL SINKING. In a discussion during the year of deep wells and borings into the earth it was brought out that the world's two deepest wells, penetrating to depths of 7579 feet and 7386 feet respectively, were the Lake, near Fairmont, W. Va., and the Goff, near Clarksburg. These wells were sunk by the Hope Natural Gas Co., of Pittsburgh, in an endeavor to reach the rich oil-bearing Clinton sand of Ohio, which it was hoped to encounter at depths between 7000 and 8000 feet. A well at Czuchow, Germany, according to the United States Geological Survey, ranks third with a depth of 7350 feet. The Geary well, sunk near McDonald, Penn., to a depth of 7248 feet by the People's Natural Gas Co., is the fourth deepest on record.

WESLEYAN METHODIST CONNECTION IN AMERICA. Founded at Utica in 1843, this denomination barred from membership all persons connected with slavery, or in any way with the manufacture or sale of intoxicants, and all persons who were members of secret societies. The Twentieth Quadrennial General Conference was held at Fairmount, Ind., on June 25, 1919. Reports to that conference showed a membership of 19,818, a decrease of 941 over the previous report; 510 churches, valued at \$815,615; 205 parsonages, valued at \$251,915; and 521 Sunday schools, with 30,193 pupils and 2174 teachers. Foreign missions are conducted in Sierra Leone with 18 missionaries, and in India with 20 missionaries. It was decided to start missionary work in Japan. Home missions are maintained in Alabama, and among the Blue Ridge Mountains. A large part of this missionary work is conducted by the Woman's Home and Foreign Missionary Society. Total receipts from all sources amounted to \$118,757.97. Colleges are maintained at Houghton, N. Y.; Central, S. C.; Miltonvale, Kan., and a Theological School, Fairmount, Ind.

WESLEYAN UNIVERSITY. A non-sectarian institution for the education of men, at Middletown, Conn. Enrollment in 1919 was 595, with 53 members in the faculty. Three professors and two lecturers were added in the year. Endowment, \$2,575,223; income, \$243,263. Number of volumes in the library, 114,000. During the year the class of 1863 presented the university with a set of chimes, costing \$9000. An endowment campaign for \$3,000,000 was launched in 1919. Wesleyan was founded in 1831. President, William Arnold Shanklin, L.H.D., LL.D.

WEST, GEORGE STEPHEN. British botanist,

died August 7. After 1909 he was professor of botany in Birmingham University. He was born at Bradford, England, 1876, educated at Cambridge, and was professor of natural history at the Royal Agricultural College of Cirencester, 1899-1906, and from that time on was on the faculty of the Birmingham University. He wrote a large number of papers on various scientific subjects which appear in the leading scientific publications.

WESTERN AUSTRALIA. One of the States of the Commonwealth of Australia, extending from the Indian Ocean to the Northern Territory and South Australia; the largest of the States, with an area of 975,920 square miles. The estimated population on Sept. 30, 1918, was 312,253, as compared with 327,162 in 1914, the decrease being due to enlistments in the war. In 1918, the males numbered 160,026 and the females 152,227. Capital, Perth, with a population (including suburbs), estimated Dec. 31, 1917, at 130,000. Legislative power is vested in a parliament of two houses: The legislative council and the legislative assembly, the former consisting of 30 members, elected for six years; the latter of 50 members elected for three years. A property qualification is imposed on electors to the upper house, but woman suffrage obtains in elections for both houses. Executive power is in a governor and ministry. Governor at the beginning of 1919, Sir W. Ellison Macartney; prime minister, H. P. Colebatch. See AUSTRALIA.

WESTERN RESERVE UNIVERSITY. A non-sectarian institution of learning, located at Cleveland, Ohio. The enrollment for the summer session of 1919 was 793; for the fall term, 1925, and in Extension courses, 1427, a total of 4143. In 1918-19 there were 369 members in the faculty. The library contained 134,000 volumes. For the same year the endowment was \$4,074,039, and the income, \$410,719. In 1919, entrance requirements for Adelbert College, the undergraduate college, were broadened by an increase of electives and a diminution of requirements. Compulsory recreational athletics for all candidates for the Bachelor of Arts degree was adopted in 1919. The university was founded in 1825, as Adelbert College, and now includes a women's college and several professional schools. President, Charles Franklin Thwing, LL.D., Litt.D.

WESTON, THEODORE. Civil engineer, died in New York City, May 6. He was born at Sandy Hill, Washington County, N. Y., Oct. 9, 1832; graduated at Yale in 1853, and engaged in railway and canal surveying in New York City. From 1857 to 1860 he was assistant engineer in the Brooklyn Water Works and he had charge of the sewage and drainage in New York City from 1861 to 1870. He was the engineering architect of the Metropolitan Museum of Art 1884-90 and other buildings. He wrote a report on the water supply of Brooklyn (1861), and other technical monographs.

WEST POINT. See UNITED STATES MILITARY ACADEMY.

WEST VIRGINIA. POPULATION. The population of the State in 1910 was 1,221,119, and on July 1, 1919, it was estimated to be 1,465,729, a gain in the last year of 26,000.

AGRICULTURE. The following table is compiled from a report issued by the Federal Department of Agriculture.

cereals being largely free. Ocean freight rates for wheat were also still subject to government control and such rates were from four to six times the rates of 1913. The price of wheat per bushel in the principal exporting countries was as follows: Australia \$1.14, Argentina \$1.55, Canada \$2.245 and the United States, No. 1 Northern Spring Wheat at New York, \$2.395. Broomhall's *Corn Trade News* estimated the requirements of wheat for 1919-20 by the principal importing countries at 768,000,000 bushels all excepting 40,000,000 bushels being required by Europe.

The United Kingdom according to this estimate required imports of 196,000,000 bushels for its normal consumption, France 128,000,000 bushels, Italy 88,000,000 bushels, Belgium 56,000,000 bushels, Holland, Switzerland and Scandinavia 40,000,000 bushels, Spain and Greece each 12,000,000 bushels, Portugal 4,000,000 bushels, Germany 120,000,000 bushels, and Austria, Hungary and Czecho-Slovakia 72,000,000 bushels.

Among the results of studies with wheat published during the year may be mentioned the data on the cost of production obtained by the Missouri Agricultural Experiment Station. Observations made from 1910 to 1917 inclusive showed that the average cost of a bushel of wheat in the sack at the farm was \$1.06 and that the different crops had paid the farmer an average of \$2.33 for every 10 hours of labor spent on them. A disease long known in Europe and caused by a nematode, or eelworm caused damage during the past year in certain parts of the United States, particularly in Virginia and in isolated localities of West Virginia, Maryland, Georgia, and California.

WHISKEY. See LIQUORS.

WHITE, HENRY. American representative at the Paris Peace Conference. He was a well-known American diplomat of long experience. He had entered the diplomatic service in 1883, was secretary of embassy in Vienna and in London, and from 1897-1905 was first secretary and often acted as chargé d'affaires. He was appointed ambassador to Italy, 1905, ambassador to Paris, 1907, retiring in 1909. He was a close friend of the late Colonel Roosevelt, by whom he had been appointed to both these embassies. In 1906 he had been the American representative at the conference of Algiciras. He was regarded as the most experienced American diplomatist and as probably knowing more foreign statesmen than any other American.

WHITLEY COUNCIL. See ARBITRATION AND CONCILIATION.

WIDOWS AND ORPHANS INSURANCE. See SOCIAL INSURANCE.

WIECHMANN, FERDINAND GERHARD. Chemist, died in 1919. He was born at Brooklyn, N. Y., Nov. 12, 1858, and studied at the School of Mines, Columbia University. He taught and lectured on chemistry for a number of years and was consulting research chemist from 1883 to the time of his death in the City of New York. He was author of the following books: *Sugar Analysis* (1890), 3d edition, 1914; *Lecture Notes on Theoretical Chemistry* (1893), 2d edition (1895); *Chemistry—Its Evolution and Achievements* (1899); *Maid of Montauk* (under pen name of Forest Monroe), (1902); *Notes on Electrochemistry* (1906).

WILCOX, ELLA WHEELER. American author

and poetess, died at Branford, Conn., October 30. Her illness of several months' duration dated from a nervous breakdown while engaged in war relief work abroad. She was born near Madison, Wis., in 1855. Her family not being well off, she began at an early age to write for the press to supplement her needs. Her poems found acceptance after she was 15 years old, and she produced rapidly and acquired a considerable popular reputation during 40 years of industrious activity. Her poems appeared in many magazines and newspapers. The collection entitled *Poems of Passion*, published in 1883, provoked criticism and ridicule, but greatly extended the writer's reputation. After the death of her husband, Mr. Robert M. Wilcox, May 21, 1916, she gave much attention to spiritualism, and believed that she was in communication with his spirit. During the war she worked with great self devotion under the Red Cross in France, delivering lectures to the soldiers. Among her writings were the following: *An Ambitious Man*; *A Double Life*; *Drops of Water*; *Sweet Danger*; *Was it Suicide?*; *Every Day Thoughts*; *Poems of Passion*; *Maurine*; *Poems of Pleasure*; *Three Women*; *Kingdom of Love, and Other Poems*; *An Erring Woman's Love*; *Men, Women and Emotions*; *The Beautiful Land of Nod*; *Poems of Power*; *Around the Year with Ella Wheeler Wilcox* (birthday book); *A Woman of the World*, (1904); *Poems of Sentiment*, (1906); *New Thought Common Sense and What Life Means to Me*; *The Love Sonnets of Abelard and Heloise*; *Poems of Progress and New Thought Pastels*, (1909); *Sailing Sunny Seas*, (1910); *Gems*, (1912); *Picked Poems*, (1912); *Woman of the World*, (1912); *Art of Being Alive*, (1914); *Cameos*, (1914); *Historical Mother Goose*, (1914); *Poems of Problems*, (1914); *Let We Forget*, (1915); *World Voices*, (1916); *The World and I*, (an autobiography, 1918).

WILLIAM AND MARY, COLLEGE OF. A co-educational state institution, at Williamsburg, Va. The enrollment for the summer session of 1919 was 60; in the fall there were 207 men and 80 women; the faculty numbered 18. For the first time in its history, the college this fall offered courses in Commerce, Business Administration, Business Law, Accounting, etc. The endowment fund is \$152,000; the income for the year was \$85,057. Number of volumes in the library, 18,000. William and Mary was founded in 1693. President, Dr. J. A. C. Chandler.

WILLIAMS, ARTHUR LLEWELLYN. Bishop, died at Omaha, Neb., January 28. He was born in Ontario, Canada, Jan. 30, 1856, and graduated at the Western Theological Seminary in Chicago, 1888. From 1888 to 1891, he was a missionary in Colorado, after which he was a rector at Denver and in Chicago. In 1899 he was consecrated coadjutor bishop of Nebraska and he became bishop of Nebraska in 1908.

WILLIAMS COLLEGE. A non-sectarian institution for the education of men, founded in 1793 at Williamstown, Mass. In the fall of 1919 the enrollment was 557, with 59 members in the faculty. Productive funds amount to \$3,051,082 and the income for the year was \$273,985. The library contains 92,000 volumes. President, Harry Augustus Garfield, LL.D.

WILMINGTON, DEL. See DOCKS AND HARBORS.

army and navy personally urged the Senate to pass the amendment as a war measure, but his effort was in vain. However, the movement was helped through the State Political Party Conventions. In 15 States both Republican and Democratic State Conventions approved the Federal Amendment. In 16 other States the Amendment was approved by either Democratic or Republican Conventions. Early in the summer Congress voted on the measure and passed it by the two-thirds vote required for a constitutional amendment; the House on May 21st by a vote of 304 yeas to 89 nays, and the Senate on June 4th by a vote of 56 yeas to 25 nays. Ratification by 36 State Legislatures is required and by the end of 1919, 22 had already ratified as follows: Illinois, Wisconsin, Michigan, Kansas, New York, Ohio, Pennsylvania, Massachusetts, Texas, Iowa, Missouri, Arkansas, Montana, Nebraska, Minnesota, New Hampshire, Utah, California, Maine, North Dakota, South Dakota, and Colorado. On Jan. 6, 1920, the Federal Woman Suffrage Amendment was ratified by Rhode Island and Kentucky, bringing the total number of States which have ratified to 24.

ORGANIZATION. The success of the woman suffrage movement in the United States is largely the result of the organizations created for furthering the cause. The most important organization is the National American Woman Suffrage Association. It is a branch of the International Woman Suffrage Alliance and of the National Council of Women. Its headquarters are at 171 Madison Avenue, New York City, and its President is Mrs. Carrie Chapman Catt. The *Woman Citizen*, the association's publication, is a weekly which was established June 2, 1917, and succeeded the *Woman's Journal*. The National Woman's Party, another powerful organization, has branches in 10 States and its headquarters at 14 Jackson Place, Washington, D. C. This organization seeks to secure the adoption of an amendment to the Federal Constitution, enfranchising women. In 1918 some of its members picketed the White House and thereby attracted considerable attention. They were arrested but the Court of Appeals of the District of Columbia held their activities to be lawful. There have been demonstrations by women against the President both in Washington and Boston during the year and those participating were arrested and released later on.

ABROAD. The effect of the war on the woman suffrage movement abroad has been very marked. The following countries had already granted full suffrage in 1918: Austria, Canada, Czechoslovakia, Great Britain (including Scotland and Wales), Germany, Guanajuato (Mexico), Holland, Hungary, Ireland, and Poland. In 1919 the following countries also granted full suffrage: East Africa Protectorate, Rhodesia, Serbia, and Sweden. In England the law enfranchising women at least 30 years old, had been passed early in February, 1918, but the government officials declared that the law did not permit women to be elected to seats in Parliament. This situation was only temporary for an act was passed granting women the right to sit in Parliament and in December Lady Astor was elected to the House of Commons. In Belgium, France, and Italy, the movement is making rapid progress and in Italy, on September 4th, following a speech by Premier Nitti, the Chamber of Deputies passed a bill giving the Italian women

the right of suffrage by a vote of 174 yeas to 55 nays.

WOMEN IN INDUSTRY. Each year, in every industrial country in the world, there is coming to be a clearer appreciation of the problems presented by the employment of women in industry. The war served to accentuate these problems, for during that period great numbers of women were called upon to fill positions formerly occupied by men, and often the work was of a nature that had formerly been considered unsuitable for women. It has been generally recognized for some time that women, because of their physical characteristics, and because of their functions of motherhood and home-building, must be protected by special legislation when they enter the field of industry. The new and often arduous occupations which they assumed under war pressure made such legislation doubly imperative. Practically every industrial country in the world to-day has special laws applying to working women, but these laws vary tremendously in form and efficiency. Existing legislation of this sort commonly takes the form of (1) attempts to prohibit women from working in mines (underground); (2) prohibition of industrial night work for women; (3) a limitation of the hours of the working day; (4) the establishment of minimum wages; (5) the prohibition of the employment at stated intervals before and after childbirth; (6) the compensation of women for loss of wages during the lying-in period. The stringency and effectiveness of these laws vary in different parts of the globe; thus, it may almost be said that Asia and Africa are the homes of the 11 and 12-hour working day for women, Europe of the 9½ and 10-hour day, America of the 9-hour day, and Australia and New Zealand of the 8-hour day. This falls far short of being an accurate appraisal, however, for the laws vary greatly, even in different parts of the same country.

The year 1919 witnessed a generally unsettled condition in this field due to enforced readjustment occasioned by the return of discharged soldiers to positions occupied by women who had taken their places when they were called into service, had filled them satisfactorily, and were unwilling to resign them. At the end of the year this readjustment was still in process, and more than one case of open friction was reported. (See also: CHILD LABOR, LABOR LEGISLATION, MINIMUM WAGE, and SOCIAL INSURANCE.)

The past year is also noteworthy in that it witnessed an international consideration of problems relating to the employment of women. Since no express provision was made for women delegates to the First International Labor Conference (See RECONSTRUCTION) held in Washington, D. C., under the provisions of the Treaty of Peace, the National Women's Trade Union League called an international congress of working-women which convened in Washington on Oct. 28, 1919, immediately before the Labor Conference. It was announced that consideration would be given to, and recommendations formulated on, problems relating to the employment and working conditions of women and children. Delegates were present to represent, and to tell of conditions in, Argentina, Belgium, Canada, Czechoslovakia, Great Britain, Denmark, France, India, Italy, Norway, Poland, Sweden, and the United States. Women from Cuba, Holland, Japan, Serbia, Spain, and Switzerland

per cent after 240 weeks. For temporary partial disability two-thirds of the loss in wage-earning capacity, but not more than \$12 per week, is payable for not more than 200 weeks. In case of death total dependents are to receive two-thirds of wages for not more than 300 weeks, and partial dependents proportionately less. The employer must pay for burial not exceeding \$100. There is a weekly maximum of \$15 and a weekly minimum of \$6, except where wages are less than \$6. Each employer is required to carry insurance unless he can satisfy the commission of his ability to pay any possible liability. A commission of four is appointed by the Governor to serve for six years at \$4000 a year, to administer the act. \$50,000 is appropriated for expenses of administration. Appeals from decisions of commission may be taken to the Circuit Court on Errors of Law, and further appeal may be taken in civil actions. In effect November, 1919.

NORTH DAKOTA. A compulsory workmen's compensation insurance law applying to all hazardous employments except agriculture, domestic service, and common carriers by steam, is enacted. All employers under the act are required to contribute in proportion to their accident hazards to a workmen's compensation fund. From this fund employees are to be furnished in case of injury all necessary medical, surgical, and hospital services and supplies. No compensation is to be paid unless disability lasts seven days, but if it does, compensation is to be paid from the date of injury. Compensation is to be 66% per cent of wages during total disability. In case of permanent partial disability, it is to be paid for a period proportioned to the percentage of disability, considering the employee's age and occupation. The weekly maximum and minimum are \$20 and \$6 respectively, but compensation may not be more than wages. In death case the widow is to be allowed 35 per cent of wages until death or remarriage, and 10 per cent additional for each child under 18, but not more than 66% per cent in all. A workmen's compensation bureau is established to administer the act, with powers necessary to conduct investigations. If compensation is denied on any "ground going to the basis of the claimant's right" an injured worker may within 30 days appeal to the district court. In effect, July 1, 1919.

TENNESSEE. An elective compensation law is enacted applying to all employments except casual, domestic, and farm labor, and interstate commerce, and excepting also coal mines, employers of less than 10, the State, counties, and municipal corporations. The defenses of the latter are not removed by the act, but they may accept its terms, and withdraw again on 30 days' notice. All personal injuries by accident are covered except those due to willful misconduct, intentional self-inflicted injury, intoxication, or willful failure to use safety appliances or perform a duty required by law. In case of injury, medical aid and appliances not exceeding \$100 in value must be allowed for 30 days. There is a waiting period of 14 days except when the disability lasts for six weeks. After the waiting period, 50 per cent of wages is to be paid for 300 weeks. If the injury causes permanent total disability the period is extended to 400 weeks, after which a maximum of \$5 a week is to be paid for another 150 weeks, so long

as the total is not more than \$5000. In death cases the widow is to receive 30 per cent of her husband's wages with 10 per cent additional for each child up to 50 per cent for 400 weeks. For both disability and death cases the compensation is to be not more than \$11 per week or less than \$5 per week unless actual wages are less. In all death cases \$100 is allowed for burial. Employer must carry insurance or satisfy commissioner that he is able to pay awards. Employers and workmen are to agree as to the amount of compensation due, and file a copy of the settlement with the bureau of workshop and factory inspection within 10 days. Disputes are to be decided in the County, Chancery, or Criminal Court, and appeals may be taken to the Circuit Court and thence to the Supreme Court. In effect, July 1, 1919.

JUDICIAL DECISIONS. During the year 1919 the last doubts as to the constitutionality of employers' liability and workmen's compensation legislation were dispelled. The decision which established their position beyond question was handed down by the Supreme Court in the "Arizona Employers' Liability Cases" (250 U. S. 400) on June 9th. This opinion states that "the Arizona Employers' Liability Law in respect of certain specified employments reasonably designated as inherently hazardous and dangerous to workmen, imposes upon the employer, without regard to his fault or that of any person for whose conduct he is responsible, liability in compensatory (not speculative or punitive) damages for accidental personal injury or death of any employee arising out of and in the course of the employment and due to a condition or conditions of occupation, but not caused by the employee's own negligence. HELD, that it does not infringe the rights of the employers under the Fourteenth Amendment." The decision was handed down by Mr. Justice Pitney, and there was a concurring opinion by Mr. Justice Holmes which presented additional reasons for the law's constitutionality. This decision carried judicial statement on the subject further than it has been carried before, it being declared that the employer could be held responsible for accidents when he was in no way at fault, and that he could then add the costs of such accidents to the price of the finished commodity so that in the end the public would pay for mutilation as one of the legitimate costs of production. A dissenting opinion was delivered by Mr. Justice McKenna, in which the Chief Justice, and Justices Van Devanter and McReynolds concurred.

BRAZIL. A system of workmen's compensation was introduced in Brazil by an Official Decree of Jan. 15, 1919; this decree became effective one month later, February 15th. The act is of a compulsory nature, and does not preclude criminal procedure in cases involving such action at common law. In fatal cases, compensation under the law amounts to \$25 for funeral expenses, and a lump sum equal to three years' wages of the worker, one-half of which goes to a surviving wife, and the other half is divided among direct heirs, according to provisions of the common law and civil code. For partial permanent disability this sum is scaled down from 30 to 60 per cent according to the degree of disability, and is paid to the worker himself. Compensation for temporary disability amounts to one-half of the daily wage of the injured party. The employer is required to pro-

of 1919 was most disappointing. The Federal government had taken practically all the larger yachts, both sail and power, and few of those that were left had been in commission for some years.

The associations in and about New York City ran off a series of races during the summer, chiefly on Saturdays and holidays and the Larchmont Club carried through a week's racing programme. The number of starters in the various events was small but it was expected that the sport would have a big boom in 1920 when Sir Thomas Lipton will make another attempt to capture the America's Cup. Sir Thomas formally challenged for the trophy in October.

Miss Detroit III for the second successive year won the gold cup races held under the auspices of the National Power Boat Association with a total of 17 points. *Miss Detroit II* was second with 16 points and *Eleventh Hour* third with four points. The *Bedouin*, owned by L. H. Straus, repeated its victory of 1918 in the New York to Poughkeepsie race.

YALE UNIVERSITY. A non-sectarian institution of higher learning located at New Haven, Conn. The enrollment for the fall of 1919 was as follows: Graduate School, 380; Yale College, 1394; Sheffield Scientific School, 1032; School of Medicine, 88; School of Religion, 111; School of Law, 135; School of the Fine Arts, 56; School of Music, 122; School of Forestry, 27; net total, 3326. There were 532 members in the faculty. The library has more than 1,000,000 volumes. Productive funds of Yale amount to \$25,000,000. The income for the year 1918-19 was \$1,997,272. The most interesting change of 1919 is the thorough reorganization effected by the Yale Corporation in March. This changed the relationship of the Sheffield Scientific School to the rest of the university, bringing it more completely within the general organization, and establishing a common Freshman year for the Scientific School and the College, at the same time lengthening the Scientific School course from three years to four. This change also included the departmentalization of the Faculty, and out of it grew later substantial increases in faculty salaries. There is in process of construction a quadrangle of dormitories for the upper classes of Yale College, the gift of Mrs. Stephen B. Harkness, in memory of her son, which will be when complete one of the finest groups of buildings of this sort in the country. Yale was founded in 1701. President, Arthur Twining Hadley, LL.D.

YATES, FRED. British-American painter, died at Rydal, England, in March. He was born at Southampton, England, but was taken to the United States in his youth and became a painter; subsequently studied in Paris under Bonnat, and acquired repute for his portraits, exhibiting at the Salon. He afterwards settled in San Francisco where he opened a school of painting, but returned to Europe and after a visit to the Continent, began about 1890 a series of portraits which gave him a wide reputation. He worked in oil and water color, pastel, crayon, and charcoal, and did a good deal of etching. In spite of this versatility he was reputed an able and honest craftsman. Among his sitters were his personal friend, President Wilson, and Mr. Augustine Birrell, Sir Henry Wood, and other well known men.

YELLOW FEVER. The report in November of the Rockefeller Foundation on progress in the warfare against this affection is encouraging, not only because this once widespread tropical scourge is now limited to a few small foci, but from the fact that the contagious principle appears to have been isolated by Noguchi in connection with cases in Guayaquil, Ecuador. The only foci for cumulative incidence during recent years have been at this locality and in Guatemala, where it was detected in June, 1918, and was a menace to the United States troops concentrated in Southern ports. In this Central American outbreak there were 550 cases with 200 deaths. Three months later the disease had been completely stamped out. Some of the local medical journals in the Spanish language give full accounts of the epidemic and the leading local health officer of Guatemala, Señor Villagrán, succumbed to the disease and received the honor of a memorial number of the medical journal, of which he was at the time editor. The rapid and thorough success of organized governmental measures of the local health boards, assisted by a representative of the United States Public Health Service, is most encouraging. The Rockefeller Foundation played no rôle in the Central American epidemic but will co-operate with the governments of western South America with the aim of the total suppression of the foci of disease in that part of the world. In an article by Rucker published in 1917 the danger spots of the disease were then said to be the Atlantic coasts of Mexico and Central America, parts of the West Indies and of western Africa. The epidemic at Guatemala was therefore not wholly unexpected, but the other areas have remained quiescent, while the appearance later of the disease in western South America was quite unforeseen. Until the recrudescence of the disease in Guatemala, the latter, as stated, was for a time the sole area of massed incidence in the world and at no time did it assume dangerous proportions.

YOUNG, BENNETT HENDERSON. Confederate veteran and lawyer, died at Louisville, Ky., February 23. He was born at Nicholasville, Ky., May 25, 1843, and was educated at Centre College, Ky. He served in the Confederate army under General Morgan. He was a member of the Kentucky Constitutional Convention in 1890. He was commander-in-chief of the Confederate Veterans. He wrote a history of the constitution of Kentucky, and other local historical works and also reminiscences of the Civil War.

YOUNG, RICHARD WHITEHEAD. Soldier and lawyer, died at Salt Lake City, Utah, December 26. He had commanded the 65th artillery brigade in France during the war, with the rank of brigadier-general. He was born at Salt Lake City, Utah, April 19, 1858, graduated at the University of Utah, 1877, at West Point in 1882, and at the Columbia law school in 1884. He served as an artillery officer and judge advocate, became brigadier-general of the Utah National Guard in 1894, and commanded the Utah light artillery in the Spanish-American War and the Philippine insurrection. On his return from the Philippines he was made regent of the State University (1905-17). He resumed active military service as colonel of artillery June 17, 1917, and was appointed brigadier-general in the National army, April 16, 1918.

YOUNG MEN'S CHRISTIAN ASSOCIA-

The latest work of the Y. W. C. A. in France, undertaken at the request of the United States army, is the cemetery work. For the benefit of the women who go to France to visit the graves of their soldier dead, centres have been provided at the large American cemeteries. At Romagne, the last resting place of 21,500 United States soldiers, the Association has taken over two barracks for the use of persons visiting the Argonne Cemetery. This is the first of a series of similar centres at Bouy, Belleau, and Tere en Tardenois, which the Y. W. C. A. is now establishing near other cemeteries of the battle area.

An American Women's Club has been organized in Paris for women not familiar with the city. It has accommodations for 125 transient guests. The Intelligence Bureau of the Club seeks to furnish every kind of information required by the traveler, including all available data on cemeteries.

CZECHO-SLOVAKIA. The Y. W. C. A. went into Czecho-Slovakia in April, 1919, at the request of Dr. Alice Masaryk, daughter of the President. A directory of existing welfare organizations and a survey of Prague were first undertaken. The survey was carried on by experts under the following divisions: Health, recreation, social welfare, industry, and religion. According to the health survey, Prague has excellent sanitary conditions, but tuberculosis is appallingly prevalent. On August 1, 1919, a six-weeks' demonstration training school for social workers was opened in a chateau on the edge of the city. Plans have been made for a student foyer in Prague; two city Associations, one in Prague, the other in Bratislava; summer camps for both cities, and a permanent Y. W. C. A. training school for native students.

POLAND. The first unit of 20 Polish Gray Samaritans set sail for Warsaw, July 31, 1919, at the request of the Children's Relief Committee of Poland. All of these women were graduates of the Polish Gray Samaritan School maintained in New York City by the Y. W. C. A. to train Polish women for reconstruction work in the land of their ancestors. Out of 300 girls who took three months' probationary training in their home cities, 90 qualified for the nine months' intensive training in hospitals and medical technic, the care and feeding of children, and various phases of social service. Warsaw has been divided into 10 districts with two workers in charge of each district. Ten soup kitchens have been established where food and minor medical care can be given to children.

ITALY. The American Y. W. C. A. coöperated with the Italian U. C. D. A. in eight centres. Headquarters are at Genoa. Other centres are Rome, Naples, Palermo, Spezia, Milan, Trieste, and Florence. Activities include hostels, clubs, and cafeterias. In Naples is an emigration port centre for women and girls. Also at Naples, directors of factories have requested noon-hour club work to keep the girls away from the streets. While none of the hostels in Italy are hostess houses, American women passing through are accommodated, and each of the centres keeps a list of pensions and hostels to which travelers may be directed.

RUSSIA. In Petrograd, in Moscow, down the Neva, from Vladivostok to Archangel, the Y. W. C. A. did its war-time work. It waits only for peace to make the work permanent. The foyer opened in Archangel at the end of July had in

four days registered 267 for class work and in four weeks there were 550,125 "Girl Guides." The foyer is now closed, but the girls, like the Y. W. C. A. secretaries, are waiting for sufficient peace in Russia for them to continue this work.

At present the active work is in Siberia. There is a hostess house at Vladivostok, which serves as a home for the 12 secretaries who sailed after the armistice. In addition there is a service centre with classes in English (200 attending), sewing and embroidery, physical training and drafting, recreation work for the hundreds of refugee boys and girls on Russian Island, and educational and recreational work among Russian wives of American soldiers.

BELGIUM. Work is opening up in Belgium. In Brussels are the headquarters office and home of the Y. W. C. A. workers, an hostel, accommodating about 20 girls with full Association programme and a foyer. This foyer is to have a cafeteria, gymnasium, concert hall, class rooms, and a rest and reading room. A second foyer in Antwerp is housed in an attractive building, provided by the citizens of the city.

RUMANIA. Bucharest is the headquarters for the work in Rumania, which was begun after the armistice, at the request of Queen Marie.

NEAR EAST. At present there are 10 Y. W. C. A. secretaries coöperating with the American Committee for Relief in the Near East.

JERUSALEM. When the Red Cross withdrew from Jerusalem, the Y. W. C. A. was urged to carry on the work. There is an hostel, used by the British girls stationed in the Palestine centre, a workroom, and an employment bureau for local women.

CONSTANTINOPLE. A Y. W. C. A. service centre was opened in Constantinople in April, 1919, when social and recreational clubs reached as many as 250 girls and where classes in English, French, dressmaking, home nursing and hygiene, stenography and typewriting were given. This centre is the first Y. W. C. A. city work opened in Turkey. Work among the Armenians includes management of the Refugees or Brides' Home in Harpout, Turkey, where there are about 130 women, most of them married to Turks and freed since the armistice, a foyer at Harpout, and relief work among refugees at Arabkir and Scutari. A service centre is planned for Smyrna.

Bulgaria, Lithuania, Greece, and Serbia have asked for Y. W. C. A. work, but these pleas have not been met because the Association has not workers or material for expansion on so large a scale.

The overseas budget for 1919 was \$3,000,000, but for 1920 it will be about \$1,000,000. A summary of the war work for United States soldiers will be found in the NEW INTERNATIONAL YEAR BOOK for 1918. The officers of the National Board are: President, Mrs. Robert E. Speer; chairman executive committee, Mrs. John French; secretary, Mrs. Lewis H. Lapham; and treasurer, Mrs. Samuel J. Broadwell. Headquarters are maintained at 600 Lexington Ave., New York City.

YUKON. A Territory of Canada, bounded by Alaska on the west and the Northwest Territories on the east and extending from British Columbia at the 60th parallel to the Arctic Ocean. Area, 207,076 square miles, of which 649 are water; population in 1911, 8512, as compared with 27,219 in 1901. Capital, Dawson,

experiments on two ciliata from Great Salt Lake, Utah. This lake contains less than 50 forms of life, in fact only 17 have thus far been reported. Pack experimented on the effect of dilution of the water on the character of the protozoa, and found that they responded by showing a greatly increased size, increased activity, shortening of the feeling cilia, more active physiological and reproductive processes and more flexible and contractile bodies. Evidently these ciliates are plastic and capable of adaptation. Pack thought that if the dilution were slow enough, they might be transformed into fresh water animals.

Juday (*Biol. Bull.*, 36, 2), stated that in fresh water lakes in Wisconsin the lower strata of water lose their contained oxygen for a certain time each summer and that when this occurs the organisms of these levels rise to a higher level. In Lake Mendota, however, he found one ciliate probably belonging to the genus *Enchelys* which has apparently become entirely anaerobic. This was found at depths of from 14 to 22.5 meters and in the majority of cases where no oxygen at all is present in the water.

Hegner (*Jour. Exp. Zool.*, 29, 3), found that *Arcella dentata* when subjected to various environmental factors such as solutions of sodium silicate and ethyl alcohol, or when subjected to various temperatures or underfed, changes appeared in the character of the shell, but that these changes disappeared when the animals were brought back to the normal conditions.

COELENTERATES. Kükenthal and Meves (*Zool. Anz.*, April), recorded observations on the spermatogenesis, maturation and early development of *Acyonaria*, up to this time very imperfectly known. Child (*Biol. Bull.*, 37, 2), published further observations on the susceptibility gradient in hydroids, showing that in a number of genera the susceptibility decreases as we go from the apical toward the basal regions. Medusa buds and gonozooids appear first on the regions where susceptibility is lowest. Hargitt (*Jour. Morph.*, 33, 1), stated that the germ cells of hydroids are never segregated in early ontogeny but are first differentiated as sexual maturity approaches. In the Scyphozoa they arise in the endoderm, while in the Hydrozoa they may arise from either or both layers even in the same individual. No evidence could be obtained from a variety of experiments to indicate that the theory of continuity of the germ plasma is correct. The chromosomes of the germ cells may show a genetic continuity but they "do not persist as discrete entities during interkinesis." Tannreuther (*Biol. Bull.*, 36, 6), described what he called migration of the reproductive organs from parent to bud in hydra. If the reproductive organ is situated near the base of the new bud, it will be carried out on to the bud with the cells which make up the latter.

Goetsch (*Biol. Centralblatt*, 39, 7), described experiments on hydra where when the apical end had been cut away, testes which had begun to form transformed themselves into tentacles. Growth and regeneration are dependent on food for neither will take place if this is lacking. Regeneration may take place independently in different parts of an organism, regulation coming in only very gradually.

PLATYHELMINTHES. Löhner (*Zool. Jahrbuch*, 36, 1), described the process of digestion of blood in planaria. The extracellular digestion in the alimentary canal is in an alkaline medium

while the intracellular process takes place in an acid medium. Prenant (*Archiv. de Zool., Exper.* 58, 5), stated that the rhabdites of the Turbellaria are formed by the degeneration of nuclei, and apparently they have the composition of nucleo-proteins. Kreeker (*Biol. Bull.*, 37, 3), described the circulation of the body fluid in a nematode showing that by reversal of a peristaltic contraction the fluid is kept moving from one end of the cavity to the other. This apparently has a respiratory function with especial reference to the nutrition of the young contained in the uterus. Young (*Biol. Bull.*, 36, 5), showed that somatic and germ cells are very closely associated in cestodes, the flame and testis cells having apparently come from a common mother cell. There is no evidence in the cestode of predetermination of parts or a germ path. Faust (*Biol. Bull.*, 36; 5, 6), described the excretory systems in a number of Trematodes showing a general similarity in the structure of this organ in a number of genera.

ANNELIDA. Gilson (*Comptes Rendus, Soc. Biol.*, 82, 23), stated that the belief that the chlorogogue cells of the intestine of the earth worm are modified peritoneum, is incorrect. They are instead, portions of the muscle cells of the intestinal wall both of the longitudinal and circular layers whose inner parts are thus differentiated for contraction, while the outer portions containing the nuclei, are glandular.

MOLLUSCA. Drew (*Jour. Morph.*, 32, 2), continued his studies on the sexual activities of the squid *Loligo*, describing the structure, ejaculation and formation of the spermatophore. This is formed in the spermatophoric sac which is divided into a number of parts each having its own function in the process. When fully formed each has a mass of spermatozoa, cementing material, and an elaborate apparatus for ejaculation. The cement fastens the spermatophore in place on the female, and the ejaculatory apparatus, at the proper time, sets the spermatozoa free. Copeland (*Biol. Bull.*, 37, 2), described locomotion in the gastropod *Alectrion*. It has previously been suggested, but generally denied, that snails may move by ciliary action. In this snail Copeland found that there was a complete correlation between the beating of the cilia on the foot and the movements of the animal, so that there is no doubt that in this case, the cilia are the locomotor organs. Arey and Crozier (*Amer. Nat.*, November-December), described the coloration of *Onchidium floridanum* in Bermuda. There are two color phases but neither shows any resemblance to the background and so cannot be regarded as protective. The animal has well developed repugnatorial glands which are an efficient protection, but the correlation of these glands with color is not close enough to warrant the supposition that the colors are warning.

INSECTS. Thompson (*Biol. Bull.*, 36, 6), described the development of the castes of eight genera of American termites. Brues (*Biol. Bull.*, 37, 1), called attention to the increase in our information concerning the comparative structure of insect larvae and pupae and the value of the study of these stages in classification. The larval stages have followed an independent line of modifications and this has led to great dissimilarity between adults and larvae in the higher insects. Baumberger (*Jour. Exp. Zool.*, 28, 1), showed from a study of various insects

